VEHICLES AT FRANKFURT SHOW

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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

MUNICIPAL PASSENGER TRANSPORT CONFERENCE

See Pages 2, 7 and 11

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CURRENT TOPICS

Roads Reminder to the Electors

PUBLIC awakening to the acute deficiencies of our road system is undoubted, though it is scarcely on a scale such as to make this a leading issue in the election campaign. Nevertheless, the Roads Campaign Council is being shrewd enough to put it before the electorate as though it were a burning issue, in the belief no doubt that there is nothing to lose and everything to gain by capitalising the moment. Hundreds of thousands of leaflets and posters are being distributed, we are told, and newspaper advertising is being undertaken, all with the simple message, "Vote for Roads." The Council adopts the expert view that an adequate highway system cannot be assured on anything less than £3,500 million, spread over 20 years. This is £175 million a year compared with the £70 million which the Minister of Transport has promised us for the years following 1962. A "new, dynamic and unique road-building programme with guaranteed finances" is the call. The villain in the road tragedy, declares Mr. Wilfrid Andrews, chairman of the Council, is the Treasury, which has never recognised that road construction "is an act of faith in a virile and expanding economy. It is the logical aid to any economic expansion." Nor is this solely a matter of what we want to use our roads for; Britain, again in the words of Mr. Andrews, is "blessed with a resolute and imaginative motor manufacturing industry" which earns £350 million abroad annually and employs little short of 800,000 workers in the manufacturing, servicing and sales spheres. It seems only good sense to foster the products of an industry which is, and looks to remain, the pacemaker in our advance to greater national prosperity and wellbeing.

Labour and the General Election

THE Labour Party manifesto for the general election, coming out a week later than that of the Conservatives, stresses amongst other things the need for an overall national fuel policy; the suggestion by the National Union of Mineworkers that fuel oil should be more heavily taxed in order to minimise its competition with coal will be fresh in mind. Not unnaturally in a political document of the kind, it showers blame on the Government. "Many of the Government's policies," it states, "have indeed been activated by prejudice." This may be so, but the examples quoted—"their transference of work from publicly-owned railway workshops to private firms and the favouritism they have shown to private airlines"—are certainly open to question. It assures voters that "under a Labour government the nationalised industries will be given an opportunity once again to forge ahead." The Party's "planned expansion" policy will necessitate "extension of the area of public ownership," steel being specifically mentioned, while "commercial long-distance road haulage will be renationalised and built into an integrated transport system." Despite previous partisan threats mention is avoided of the ticklish question of C-licence operation. With half a million cars coming on the roads each year the Government's road programme is regarded as entirely inadequate, "but to solve the problem road-building must be related to a national plan which covers all the transport needs of an expanding economy." Whilst there are no other plans for further nationalisation there is the statement that "where an industry is shown, after thorough inquiry, to be failing the nation we reserve the right to take all or any part of it into public ownership if this is necessary." There is no mention of the character of the tests to be applied.

New Style Dockside Equipment

THE future dockside aspect of ports is likely to be materially improved if, as one may reasonably expect, the attractions of a new and revolutionary British crane are duly appreciated. The product of a foremost firm in the business—Stothert and Pitt, Limited, of Bath—this new cargo crane can lift 5 tons at 80 ft. radius or 6 tons at 70 ft. radius with the utmost facility of control and movement. As will be seen from the article published in our September 19 issue, it is remarkably clean and workmanlike in construction and, with its absence of lattice work, should entail minimum maintenance costs. Acclaimed by a large company of Press and transport men at a recent inspection at the works this prototype will shortly go into trial working in the port of London. It represents one of several developments under the chairmanship of Mr. R. A. Riddles, who, it will be recalled, retired from the Railway Executive in September, 1953, after six years' responsibility thereon for mechanical and electrical engineering. Essentially a locomotive man—he became a vice-president of the L.M.S. in May, 1946—Mr. Riddles became acquainted with cranage problems in the last war when he was responsible, under the Minister of Supply, for all Royal Engineer equipment. This experience stood him in good stead when he joined the board of Stothert and Pitt shortly after relinquishing railway service. In welcoming that company's guests at Bath he said that the crane represented an attempt to meet world competition; it was a great improvement on anything the firm had produced before and its design had been evolved by a new research department set up two years ago. Responding for the visitors, Sir Stephen Luke, Senior Crown Agent for Overseas Governments and Administrations, described it as a novel engineering achievement based on new and exciting research and he wished it—and the firm—every success.

LEADING FEATURES IN THIS ISSUE

Foundation of Revolution

ASK the average man what invention touched off the industrial revolution and, likely as not, if an answer is forthcoming, he will refer to Arkwright and the spinning jenny. The tools of the great change were in reality being forged half a century earlier, in the very beginning of the eighteenth century, when Newcomen reached success with his steam engine and the Abraham Darby father and son revolutionised iron smelting. In the latter part of the century industrialisation was, of course, greatly facilitated by the building of the canals, the emergence of a great mileage of turnpike roads and the development of the tramroads and plateways linking mines and works with water transport. While pig-iron production relied on charcoal, however, none of this progress could have been achieved, as the supply of timber for charcoal was quite inadequate to sustain any large industry. The perfection by the Darby family of smelting by coke, carried out soon after 1709 at Coalbrookdale, Salop, made possible all that followed, although the change was no doubt almost imperceptible at the time, so much so that the very date of certain success with the new process has gone unrecorded. Arbitrarily, this week has, however, been chosen for celebration of the 250th anniversary; it is pleasing to record that Allied Ironfounders, Limited, present owner of the blast furnace site, has reconditioned it for the occasion, which has been organised by the British Cast Iron Research Association, with a national committee presided over by Sir Frederick Scopes, chairman of Stanton Ironworks Co., Limited, and present chairman of the British Coking Industry Association.

Unique Screw Thread Guide

PROBABLY the best ten-shillingsworth ever made available to those with an academic interest in or actively engaged in the production or supply of screw threads has recently been produced by W. H. A. Robertson and Co., Limited, Lynton Works, Bedford. This new book, *The Robertson Guide to World Screw Thread Standards*, one of a series of technical guides published by the company, collates in one volume the screw thread standards of the world and gives them a common denominator of comparison. Over 2,000 standards are listed covering 33 countries and no fewer than 108 thread forms, in addition to a number of self-tapping screws, are illustrated. The guide relieves a major headache of manufacture or supply against export contracts by providing ready and positive identification of the standards specified, or at any rate the great majority of those likely to be met—for the company is modest enough to admit that there might be some standards which its researchers have not yet found. The company is also modest in asking only 10s. for this unique publication; such a sum cannot begin to cover the cost of research and work involved in its production any more than it has relation to the value of this guide to industry.

Oldest Public Railway Tunnel?

HISTORIANS have sometimes argued as to the reality of tunnels as continuous structures. A case in point is offered by Bullo Tunnel, originally built for the privately-promoted Bullo Pill Tramroad in the Forest of Dean, which ran 4½ miles from Cinderford Bridge to Bullo Pill Docks, on the Severn, about 16 miles west of Gloucester. It was opened to public traffic about 150 years ago, probably in the last week of August or first week of September, 1809. The system was laid for horse traction with cast-iron plate rails to a gauge of 4 ft. When the 7-ft. gauge South Wales Railway came into the area it obtained powers to purchase the plateway and to convert it to a 7-ft. gauge locomotive railway. This meant, inter alia, enlarging the 1,083-yd. long plateway tunnel under Hay Hill, under the supervision of Brunel. The work was completed on July 24, 1854, and it is this air-space, or hole in the ground, to which we referred. Now 1,064 yd. in length, it is on the alignment of the original tunnel of 1809, but, of course, much larger in structure gauge. The track was narrowed to 4 ft. 8½ in. gauge with the rest of the South Wales system on May 11-12, 1872. Bullo Tunnel under Hay Hill is today still in use for freight services; at 150 years of age it can put up a challenge as the world's oldest surviving public railway tunnel and might well deserve B.T.C. recognition in this respect, at least in the form of a commemorative plaque.

A Notable Presidential Address

GREAT tributes were paid to Mr. Robert Arbuthnott, the retiring president, at the inaugural meeting of the Institution of Locomotive Engineers for the 1959-60 session this week, by Messrs. R. C. Bond and J. F. Vidal on behalf of the members, who have enjoyed a successful year under his benevolent guidance. The new president, Mr. R. A. Smeddle, whose portrait and biography appear elsewhere in this issue, then gave his presidential address, the second part of which appears in summary form on page 3. The first portion of his remarks dealt with reminiscences of some notable events in his earlier years in railway service, while the later section referred to current development work with which he is associated at Swindon. The two sections had a closer relationship than might be suspected, for the earlier part was a reminder that with a little luck Sir Vincent Raven would have been a pioneer of 1,500-volt main-line electrification on the North Eastern between York and Newcastle which might have led to British Railways being in a vastly superior position today. Perhaps it *was* unlucky to have chosen 13 as the stock number of his prototype 2-C-2 electric locomotive. The North Eastern also pioneered with a Leyland railbus before grouping and the L.N.E.R. had an insight into diesel-electric railcar design three decades ago. Now we are at last progressing and as the proposer and seconder of the vote of thanks, Messrs. J. S. Tritton and Kenneth Cantlie, suggested, we owe much to the enlightened outlook of such present-day masters of their craft as the new president.

Manifold Valley Track

SERVING an exceptionally remote and thinly-populated area of Staffordshire, the 2 ft. 6 in. gauge Leek and Manifold Railway was one of those light railways which probably would never have materialised had the road motor vehicle developed a decade earlier. However, from 1904 to 1934 it provided an example frequently encountered on the Continent, of a narrow-gauge line capable of carrying standard-gauge wagons to destination on transporters. After its closure and the lifting of the track the London Midland and Scottish Railway handed the roadbed to the Staffordshire County Council. Sir Josiah Stamp, as he then was, in his capacity as chairman and president of the executive of the L.M.S., opened the path and handed over a deed of gift to the chairman of the county council on July 23, 1937. Alderman Patterson then dedicated the site as a public footpath. The deed of gift does not specify the use of the track and in 1951 the authority obtained alleviation of its own order of 1938 prohibiting vehicles (including pedal cycles); the new order arranged for admission of vehicles up to three tons on one and a half miles between Redhurst and Butterton, although there is a parallel public road and the track goes through the 150-yd. Swainsley Tunnel. This year application was made to open a further one and a half miles to motor cars. Not surprisingly, it has aroused a storm among ramblers and lovers of the quiet countryside such as has caused the proposed order to be withdrawn.

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

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Future of Municipal Passenger Transport

DYNAMIC proposals for future assistance to town bus and trolleybus services were put forward by Mr. Frank S. Taylor in his presidential address to the Municipal Passenger Transport Association, which has this week enjoyed a successful conference in Edinburgh. Municipal transport is passing through a period of change such as is often viewed with alarm; the contraction in traffic has led to some despondency. Yet, looking on the brighter side, the level of municipal road passenger business is still three times that of 1938—6,349,000,000 passenger journeys in 1958 compared with 2,102,000,000 twenty years previously. Reduction in need compels greater care in providing services which are adequate but not wasteful. Financial stability must be regarded as essential—if a trading concern, public or private, cannot pay its way it becomes a liability on the national economy. But the industry cannot maintain vital public services without fair treatment from the central authority. It will be no surprise to readers of MODERN TRANSPORT that Mr. Taylor had in mind the iniquitous diesel fuel tax. The excise licence duty concession made this year was, as he said, an insignificant proportion of the total taxation.

Aiding the Bus Industry

HE set out three main heads for assistance to the industry, first among which came removal of the 200 per cent tax on diesel fuel—an excessive tax on a service vital to the community. Secondly, he pointed out anew that street congestion is one of the principal factors which adversely affect efficient operation. If the average speed of city services could be raised by only one mile per hour the benefits that would accrue to the industry and the community would be far-reaching, not only through the direct savings in vehicles, manpower and fuel, but in the indirect saving in passengers' time. It is Gilbertian that powerful modern machines traverse city centres slower than their horse-drawn predecessors. "As an association," declared Mr. Taylor, "we should press for:

"(a) Measures to provide an adequate road programme *within* our towns and cities. This is just as essential as the high-speed motorways which are being planned to span the countryside;

"(b) The extension of 'No Waiting' restrictions to all main arterial roads carrying public transport services within the central area of any city; and

"(c) Public service vehicles to have a reasonable degree of priority over other traffic, and to be allowed to pick up or set down passengers within short distances of their offices, shops and factories. There should be no question of public transport being routed away from main business and shopping thoroughfares. The value of the bus as an economic road user is self-evident, and it is vital that bus services, whose routes are determined by the industrial, commercial and social life of the community, should be maintained."

His third point was that present-day restrictions on the bus industry in respect of the size of the vehicle and its speed should be modified. "The bus driver is a professional with a standard of skill which is considerably higher than that of the average motorist. He is driving a vehicle which is subject to a stringent periodic examination by Government examiners, and it is serviced and maintained at a far higher standard than the average motor car. Under these conditions the limitation upon size could well be revised, and the permitted speed brought into line with the private vehicle."

Co-ordinated Effort Needed

ALSO crystal-gazing in Edinburgh was Councillor W. Alker, chairman of Bury Corporation Transport Committee, who was dealing with what he cannily described as "the reasonably foreseeable future of municipal transport." An abstract of his thoughtful paper appears elsewhere in this issue. Not everything he said will be universally acceptable (surely, as one example, the difference in the Traffic Commissioners' attitude to municipal and company fares applications, where it exists, derives from the entirely different methods of providing and servicing the capital?) but sound common sense pervaded his remarks on traffic congestion, the economy of bus transport in use of valuable road space, and development of parking lots on city outskirts. The possibilities of spreading the peaks and thus enhancing national productivity by such means as eliminating weekend breaks and conversion of bank holidays into extensions of normal holiday periods deserve examination, even though the religious objections (which the author recognises) might prevent full acceptance of any such device. He made a strong appeal for managers in municipal transport to be allowed to manage under the policy laid down by the committee, with the committee refraining from embarking upon any aspect of day-to-day administration. Members of a transport committee should concentrate on what is best for the community at large and should be given the confidence of the council without the delays and uninformed and often merely destructive criticism encountered under present procedure. Despite space transport manifestations he thought there was a good deal of room for fundamental technical improvement in terrestrial transport, with an eye all the time on home-produced fuel. As to provision of facilities he gave a timely reminder that if public transport is to survive effectively it must be considered as a whole; there is vast scope for elimination of parochialism and of sectional interests in the pattern of road and rail passenger services.

Platform Staff Incentives Impracticable

FROM neighbouring Rochdale Mr. Ronald Cox, the general manager, presented an informative paper on the moves towards incentive bonus schemes for platform staffs—this is also summarised in this issue. He was careful to distinguish incentive bonus schemes from merit schemes connected with such matters as freedom from accident or length of service. Presumably any incentive scheme for traffic staff would be expected to result in reduction in scheduled hours, reduction in number employed and consequential savings in cost of uniforms, sick pay and the like. There was a danger of one undertaking bargaining against another and of schemes being used for argument on wage differentials. In presentation Mr. Cox's thesis was far from negative, but every line of investigation he followed gave rise to insoluble difficulties. There were immense variations in traffic, some for known causes such as warm weather, but many through public caprice; fares alterations, use of some one-man buses and of buses of varying capacities, operation of private hire, the part to ascribe to inspectors and others not counted as platform staff, all provided problems. If one took passenger-miles as a basis a man on a run to a distant housing estate who had an easy shift might score more points than one struggling on a busy in-town route with masses of short riders. On the other hand a tapering fare structure would work against the long-journey crews; marrying tickets for machine-issue purposes would confound the calculations. Useful details were given of the Manchester, Bury and Sunderland schemes which are in operation and the Newport and Swindon proposals which were not accepted, but the author leant towards the view of the companies and London Transport that a satisfactory basis had yet to be found. He concluded that if there was a real need then it must be a national need and he saw no evidence of that. But is the industry doing all it can in examining the question of increased output apart from cash bonus incentives?

MODERN TRANSPORT has an arrangement with Reuter's Trade Service whereby publication is made in this newspaper of all essential news from all parts of the world concerning traffic and transport by rail, road, sea and air and allied interests.

NEWS SUMMARY

THE Municipal Passenger Transport Association has held its conference in Edinburgh this week. It is the subject of an editorial comment on this page and abstracts of papers are also given. Among visits was a notable one to the coachworks of Walter Alexander and Co. (Coachbuilders), Limited, described in our September 19 issue.

Mr. D. J. Ezra, National Coal Board sales chief for London and the South of England, opened the reconstructed Southern Region Walworth Road coal depot on September 21. The depot has 50 bunkers for loading road vehicles by sack and cost £300,000.

London Transport is to rebuild the upper works of the bomb-damaged station at Wapping on the East London Line.

The Silver Arrow rail-air-rail service between London and Paris is, this year, to be maintained throughout the winter.

When the £1,700,000 reconstruction of Manchester London Road station is completed in 1962 the London Midland Region will rename it "Manchester Piccadilly."

Trains connecting with the Weymouth—Channel Islands steamer service will run to and from Waterloo as from November 2. The Channel Islands service will operate thrice-weekly, once via Southampton and twice via Weymouth.

SOME RECENT RAILWAY DEVELOPMENTS

Rolling Stock and Locomotive Design

By R. A. SMEDDLE, M.I.Mech.E., M.I.Loco.E., Chief Mechanical and Electrical Engineer, Western Region, British Railways*

IN 1956 the first of the intercity diesel trains were built at Swindon and sent to Scotland to operate the hourly interval service between Edinburgh and Glasgow. For such main-line fast services, it is necessary for the vehicles to be built to the same structural specification as the British Railways standard main-line stock, i.e., all the vehicles must be provided with buckeye couplers together with Pullman type gangways, and be capable of withstanding an end compression load of 200 tons applied to the end couplers.

In the standard B.R. all-steel coach, these requirements are met by a steel superstructure on a trussed underframe, the latter being alone capable of withstanding all the vertical loads and the 200 tons end compression load, without any assistance from the sides, roof or floor of the vehicle.

Achieving Weight Reduction

To reduce the weight of the intercity diesel trains, and to provide the maximum space below the floor for the assembly and maintenance of the diesel equipment, the intercity cars were designed on the stressed body principle, in which the sides, roof and floor combine with the underframe to form an integral structure, all parts of which are stress-bearing.

The stress analysis of such a structure is very complex, and to prove the design procedure and ensure that the vehicles fully met the requirements of the specification for B.R. main-line coaches, one of the intercity cars was sent to the S.N.C.F. testing station at Vitry, where it was exhaustively tested, in accordance with the test procedure prescribed for international coaching stock by the O.R.E. Specialists Committee, who are investigating the strength of carriage bodies. The tests included the recording of stresses by strain gauges at 248 places on the steel coach frame when subjected to (*a*) the maximum vertical static load which the coach has to withstand in service; (*b*) 200 tons compression load applied at drawbar height through the end couplers; and (*c*) oscillations of the vehicle when subject to vertical and transverse vibrations were also recorded.

Compression Loads

Under vertical loading, only two stresses in excess of 4 tons per sq. in. were recorded, the majority being of quite a low order, while under the compression load there was no permanent deformation at any part of the coach structure, all the stresses being within the elastic limit of the steel. In this connection it will be noted that the compression load of 200 tons is not one normally experienced under service conditions, but it is intended to ensure that the vehicles offer reasonable protection to the passenger in the event of collision, and, in these circumstances, it is permissible for the stresses to be higher than can be allowed for vertical loading which are attained in normal service.

During the tests accurate measurements were taken of the distortion of the coach body in such places as doorways, windows and body sides, and no unusually high deformations were recorded which would indicate particular points of weakness in the design. The vibration of vehicles under service conditions is an important matter upon which more research is necessary by railway vehicle designers, and the tests carried out at Vitry were designed to provide data for such investigations. For the present it can be stated that the results of the vibration tests on the intercity car compare favourably with those of the other vehicles provided by various European administrations for similar testing at Vitry.

Results of Tests

The general conclusions which could be drawn from the tests was that the vehicles met the full requirements of the B.R. specification for main-line stock, but there was scope for further reduction in tare weight, which could be achieved by a more critical analysis of the stressing throughout the vehicles. Investigations on these lines have continued and a basic design for a main-line coach developed, on which the integral steel body will be nearly 2½ tons lighter than the comparable structure of the present standard B.R. coach.

The general improvement in the standard of comfort and in the amenities demanded by passengers, in the form of insulation, double glazing of windows, buffet facilities and improved ventilation, etc., all have the effect of increasing the weight of our coaching stock, and when this is considered in the light of our efforts to improve train speeds and reduce our motive power costs to a minimum, the importance of any developments which can reduce the weight of our coaches at an economic cost becomes apparent.

It is evident that, apart from any reduction in tare weight, which can be achieved on the steel structure of the coach, efforts must also be made to effect reductions in the weight of the bo[illegible]es and in the ancillary equipment. In the case of the former, economy in weight must be obtained with improved riding characteristics and reduced maintenance costs. Passenger comfort must not be sacrificed, and all weight reductions must be made with due regard to economic considerations.

Equipment of New W.R. Dynamometer Car

Recent years have seen a very considerable advance in testing techniques as exhibited particularly in the development of the Swindon controlled road testing system. New methods of measurement and recording have become available; indeed these have been found essential to the solution of problems arising with the new forms of motive power. The Western Region dynamometer car was constructed in 1901 and has been in use for all this time, but I came to the conclusion recently that the car was not in a fit structural condition for dealing with the testing of locomotives hauling the modern heavy trains running at high speeds. It was, therefore, decided to replace it by a more modern vehicle and, in so doing, it was thought advisable to take advantage of the latest techniques.

Its equipment will be able to present all the essential measurement data under the actual running conditions and in a form which will permit of rapid and critical appraisal. It will provide an example of the adaptability of electronic methods to solution of traction problems. Drawbar pull, for instance, will be measured by strain gauge transducers in three load ranges. The highest range has a capacity more than equal to the highest efforts that can be, or are likely to be, exerted by locomotives in this country. These transducers will be capable of being transferred from the drawgear at one end to that at the other, and so avoid having to turn the car.

Tractive effort/speed curves and speed/distance/time curves will be produced automatically by means of suitable transducers and servo-motors. A large part of the space available will be devoted to the accommodation of oscilloscopes and recorders operating in conjunction with transducers for pressure, temperature, acceleration, voltage, current and displacement.

Diesel-Hydraulic Locomotives

You will probably expect me to say something about the Swindon-built 2,000-h.p. diesel-hydraulic locomotives of which 11 are now in service. Whilst in the early days of modernisation, the tendency generally on British Railways was to develop designs for diesel-electric locomotives, the Western Region management was considering the possible advantages of the hydraulic transmission and it was decided, with the concurrence of the British Transport Commission, that this region should, in fact, take the initiative in exploring the possibilities in this field.

Whilst I do not intend to intervene in the conflict of opinion in regard to the advantages and disadvantages of electric transmission, a preliminary examination seemed to indicate that whilst electric transmissions had given satisfaction for many years and were still favoured by many railways, the advent of the hydraulic transmission for main-line locomotives had to some extent changed the position. In particular, it was thought that its low weight, especially if used in conjunction with the low-weight high-speed diesel engine and a lightweight form of locomotive construction, would show economies in operation. It was also thought that obviating the intermediate electrical energy stage of the diesel-electric locomotive must be a step in the right direction provided that the hydraulic transmissions as at present developed were reasonably robust and reliable. Experience in Germany on quite a large scale furnished evidence that this was so, and it was decided, therefore, to build a number of diesel-hydraulic locomotives for service on the Western Region.

Three Basic Types

Three basic types were initially proposed: (1) A 2,000-h.p. four-wheeled bogie locomotive with Maybach engines and Mekydro transmissions to be designed and built at Swindon; (2) a 2,000-h.p. six-wheeled bogie locomotive with M.A.N. engines and Voith transmissions to be designed and built by the North British Locomotive Co., Limited, and (3) a 1,000-h.p. four-wheeled bogie locomotive with M.A.N. engines and Voith transmissions to be designed and built by the North British company.

The Swindon locomotive was to be based on the German V200 designed by Krauss-Maffei at Munich, as this design was thought to be of considerable merit, particularly as its weight was less than 80 tons for a horsepower of just over 2,000. The major problem in this case was to accommodate all equipment, or its equivalent, of this German locomotive in another one which had to be 10 in. less in height and 16 in. narrower, such limitations being imposed by the B.R. load gauge. The low weight has been achieved partly by using the Krauss-Maffei design principle.

Future of Dieselisation

There is such a lot one can say after 40 years or so of experience in any department. But what of the future, in particular the changeover to dieselisation? So far as locomotives are concerned, will the high-speed light-weight engine or the slow-speed medium-weight engine ultimately find favour? Similarly with the transmissions, will hydraulic types continue to make progress in power and number?

I would make a plea for greater simplification, particularly as regards the auxiliary equipment, control gear and the various protection devices. In practice it has been found that the latter devices can cause unnecessary shutdowns due to defects in the device itself. Whilst they undoubtedly would and do function satisfactorily under static conditions, a much more robust design is required of those to be placed on locomotives.

Weight is also an important consideration as instanced by the two types of 2,000-h.p. main-line diesel locomotives on the Western Region, one weighing 78½ tons and the other 117 tons. It is obvious that on any route the first locomotive will be able to haul an additional 40 tons. Once through with the initial stages involving many complex problems usual to such a changeover, dieselisation should be a paying proposition.

Securing Utilisation

Timetables must be rearranged so that the greatest utilisation is made of these expensive units. In order to obtain a maximum return on the money expended, such locomotives must be made available for traffic for at least 20-21 hours per day. If this is done, dieselisation should, in due course, bring the expected revival on the railways, despite the fact that haulage on the road is bringing increasing competition. In other words, it is hoped that dieselisation will demonstrate the advantage of rail as a means of transport.

Finally, may I say a word about our Institution. I well remember when I first started at Darlington, how helpful I found such *Journals* as had then been published. Since that time a great deal of invaluable information on railway engineering in all its phases in the form of papers and discussions has been made available and I think it is the duty of the older members to urge those starting their careers to join the Institution at an early age and so to enjoy the benefits which the Institution can place before them.

* Abstract of the presidential address to the Institution of Locomotive Engineers, "The North Eastern Railway and Some Recent Railway Developments," delivered in London on September 22.

LORRY—BUS—COACH

New London Busmen's Agreement

BY 96 votes to 23 a London busmen's delegate conference last week accepted the improvements offered by London Transport to the working agreement (MODERN TRANSPORT last week). According to a union statement after the meeting the primary effect is to replace the six-day, 44-hr. week by an 11-day, 84-hr. fortnight, so that no driver or conductor would work more than 84 hr. in a fortnight instead of, it is claimed, a maximum of 90 hr. 45 min. of duty. The new conditions, which will be introduced gradually, include reductions in spreadover. The maximum spreadover on Sundays and public holidays is to be reduced by an hour to 9 hr. 40 min. and on Saturdays by 40 min. to 12 hr. The maximum length of scheduled duty on Sundays and public holidays is to be cut by 15 min. to eight hours.

Where the total time on duty is eight hours or more the length of time working on a vehicle without a break will be reduced by half an hour to four and a half hours, and there will be slight reductions at some garages in the average time worked on each duty. There are to be improved cash allowances for scheduled overtime. All sections of the road services are governed by the new agreement which has been under negotiation since April, although the 84-hr. fortnight was first proposed as long ago as 1957. Discussions initiated at about the same time this year on new wage rates for one-man buses which London Transport wants to operate in its Central area have not so far resulted in any agreement.

Those Diesel Fumes Again

BREAKING up of road surfaces is caused by diesel fumes, says Dr. A. J. Dalzell-Ward, who is medical director of the Central Council for Health Education. This, he thinks, is due to the concentration of the fumes at road level and the high temperature. He was addressing West Riding urban district council representatives at Scarborough.

More Silent Checks on Goods Vehicles

MIDLAND members of the T.R.T.A. have been warned that, with more staff on enforcement, the Ministry of Transport is intensifying its programme of "silent checks" on goods vehicles. In these, the registration numbers and passing times of vehicles are noted for possible inquiries into excessive hours of driving. It is customary for the record sheets of the vehicles checked to be requested for a period of a fortnight around the check date.

B.R.S. Acquires Depot in Lincoln

ARISING out of the reconstruction of the Lincolnshire Road Car bus overhaul works at Bracebridge Heath, Lincoln, one ex-aircraft hangar was left surplus to requirements and this has now been taken over as a parcels depot by British Road Services. A loading platform covering about 5,000 sq. ft. has been made available, capable of handling 20 vehicles at one time. The new depot replaces premises at Newark and Scunthorpe; from it about 20 vehicles are operated on collection and deliveries in Lincolnshire and there are inter-depot services with London, Manchester, Leeds, Sheffield, Northampton and Boston.

Topcoat on Preston Motorway

EARLY next month work will commence on the final asphalt surfacing of the Preston by-pass motorway. This operation is as scheduled but some inconvenience must be expected by users of the motorway. Short sections of each carriageway will be closed in turn and traffic will cross by prearranged gaps in the central reserve on to the opposite carriageway which will thus temporarily become a two-lane bi-directional road on which overtaking will be difficult, if permitted. The work will, in favourable circumstances, be completed in about eight weeks.

Two of a number of Guy vehicles of various capacities in the large Blackburn-based fleet of W. H. Bowker, Limited. They have just loaded grapes at Liverpool Docks for the London markets

Leeds—Bradford Bus Route

COMPLETELY erroneous was the description applied by Mr. C. T. Humpidge, general manager, Bradford City Transport, to a Leeds suggestion that Bradford wanted to discontinue the through bus service between Leeds and Bradford. He said Bradford did not wish to discontinue the service but to improve it. He had sent a purely departmental letter to the general manager of the Leeds undertaking about ways of meeting the competition from the diesel rail service between the two cities, which has caused a drop of some thousands of pounds a year in bus receipts on the route. Mr. Humpidge said: "It was suggested that we discuss making the route a limited stop route, with the possibility of joining up the Bradford—Stanningley and Leeds—Stanningley services so that it might be possible to give an additional through service. It was an exploratory letter, and there was no intention of taking off the service."

Farewell to South Shields Trolleybuses

AFTER running in service 23 years, South Shields Corporation trolleybuses are to be scrapped, and the Corporation will in future standardise on buses. Trolleybuses were commenced in South Shields as recently as 1936, and the last trams did not cease running until 1946. At present the Corporation fleet comprises 56 trolleybuses and 46 buses. Mr. J. Crawford, the general manager, said it was not a question of profit or loss as either vehicles could earn a profit where there was a sufficient density of passengers. It was a case of providing an elastic transport service capable of expansion to meet new needs, and in this respect the trolleybuses were at an obvious disadvantage. The changeover to buses will be extended over a period of years. In Portsmouth 23 trolleybuses are to be disposed of forthwith as redundant and in need of extensive repairs. Buses will replace trolleybuses on routes 3-4, 7-8 and 13-14 in the first stage of the abandonment programme decided on. Routes 19-20 will follow.

Illegal Operation No Bar to Licence

THE Minister of Transport, in a recent p.s.v. appeal decision, has rejected a submission that an excursions and tours application substantially founded on evidence of illegal operation over a number of years, even though otherwise desirable in the public interest, should on that account be revoked. Since the legality or illegality of carriage cannot affect the validity of factual evidence of need or demand as such, these arguments do not affect the Commissioners' findings in favour of the application. The evidence showed that this need would remain unsatisfied and it would not therefore have been in the public interest to refuse to make the grant on account of the previous illegal operations. The Road Traffic Acts contain separate provisions for the punishment of infringements of this kind.

Appeals were lodged by Happiway Tours (Manchester), Limited, Stanley Spencer's Tours (Manchester), Limited, Smith's Tours (Wigan), Limited, and W. Robinson and Sons (Great Harwood), Limited, against the decision of the North Western area Traffic Commissioners granting to Pleasureways (1955), Limited, modification of an excursions and tours licence from Manchester so as to include a seven day tour to Margate.

Scathing Attack on Vehicle Restrictions

REMEDIES applied to relieve traffic congestion in British cities have been wrongly based, declares Sir Herbert Manzoni, city engineer and surveyor for Birmingham, in a paper which he read at the annual conference of the Association of Municipal Corporations last week. He went on: "In almost every case we have tried to deal with our traffic by restriction. It is quite wrong. No-parking regulations, unilateral parking, traffic lights, such experiments as the Glasgow experiment—granted each has brought some relief to the streets—but restriction is not the way. It cannot do more than give temporary relief and soon that relief will be overwhelmed. You have got to welcome traffic and realise that it is an indication of our high and increasing standard of living. We have to welcome cars into our city centres and not push them out. But it is no longer possible for cars to be left in the centre of any town without charge. That has got to come and should be faced."

His paper emphasised the need for adequate permanent off-street parking by such means as multi-storey or underground garages and his suggestions included the adoption of basic standards for car parking provision in new buildings and a levy on the owners or occupiers of existing buildings in central areas to provide car parks to meet the demand.

Municipal Results

Liverpool.—The number of passengers carried has declined from 359 million in 1957 and 354 in 1958 to 352 million in the current year ended March 31. In the same period bus mileage (including trams also in 1956-57) increased from 40.5 million to 41.9 million. The operating surplus was £110,752 (£212,220), reduced after appropriations to £28,351 (£58,387). The balance carried forward to next year is £89,971 (£61,620).

Burnley, Colne and Nelson.—A surplus of £81,595 on working.

Manchester.—There was a net surplus on buses of £52,794 (£61,387 deficit) and a surplus of £1,110 (£12,370) on the trolleybuses. In the outcome there was a surplus carried to general reserve of £15,752, against a deficit charged thereto of £83,710 in the previous year. Bus passengers were down 30.2 million at 364.5 million, trolleybus passengers fell 8.0 million to 46.3 million.

Bus and Coach Developments

G. M. Reid, Inverarie, applies for the Stonehaven (Square)—Brickfield (Thomson Terrace) service of Mitchell's Garage (Stonehaven), Limited.

Mr. J. Greenshields, of Salsburgh, who has operated a bus service between Shotts and Airdrie for some forty years retired officially from business at midnight on September 12. The bus service was taken over by Mr. Sam Anderson, the Newhouse (Motherwell) haulier.

A. Boulton, Cardington, Church Stretton, applied for excursions and tours from Tugford operated by A. E. Freeman.

Southern National Omnibus Co., Limited, proposed a Monday to Thursday service between Shaftesbury and Henstridge via East Stour and West Stour.

FOCUS ON MULTI-FUEL ENGINES

Frankfurt Motor Show

MORE FOREIGN EXHIBITORS

LARGER than ever before, the Frankfurt Motor Show, which closes tomorrow, Sunday, September 27, this year includes commercial vehicle exhibits from six countries in addition to the products of the German industry. Since the last German motor show two years ago, when the chassis and trailer makers first felt the effects of the new legislation which limited weights and dimensions, there have been no concessions from the German government or a more generous treatment of the road haulage industry. By next July the final stage of the new regulations should become effective, but the signs at Frankfurt indicate that the manufacturers, at any rate, are hopeful that the 1949 Geneva Convention recommendations will still be adopted or more closely approached. The influence of the so-called "Seebohm policy" on commercial vehicle design has become marked, although at Frankfurt almost every chassis manufacturer exhibits at least one or two models which exceed the permissible gross weights. German makers of lorries and buses are now becoming far more weight conscious; furthermore, h.p./ton g.w. ratios lie well above the minimum required by law and the articulated vehicle for the maximum gross weight of 24 tons is becoming far more prominent.

Commer demonstration vehicle fitted with new multi-fuel engine; right, prototype 20-ton container vehicle for road-rail use and Faun tractor; below, heavy salvage vehicle by Weidner with MWM 200-b.h.p. engine and six-wheel drive; and, right, Flexmobil cross-country vehicle for 2½-ton payload developed by Kässbohrer from a Swiss design

British Multi-Fuel Engine

The articulated vehicle is also being adopted more widely for passenger transport, one firm (Gaubschat of Berlin) having hit on the idea of offering conversions of existing buses and passenger trailers into articulated units. It may be recalled that drawbar trailers in passenger service will make their last run on June 30 of next year. German commercial vehicle production in 1958 rose to 180,792 units. In addition 6,972 buses and 35 trolleybuses were built, an increase of 1,468 road passenger vehicles over the previous year. Foreign participation in the commercial vehicle section of the show includes Dutch, Swedish, Austrian and French besides British names. There is a solitary bus exhibit from Italy (Macchi), but the Rootes Group, which shows Commer and Karrier vehicles, takes the opportunity to introduce to the public the new multi-fuel engine briefly described in last week's issue. In the demonstration park an A.E.C. Mercury with an Eaton tandem axle conversion contrasted strongly with German vehicles of equivalent capacity which somehow seem to lack the clean and functional design inherent in British thought.

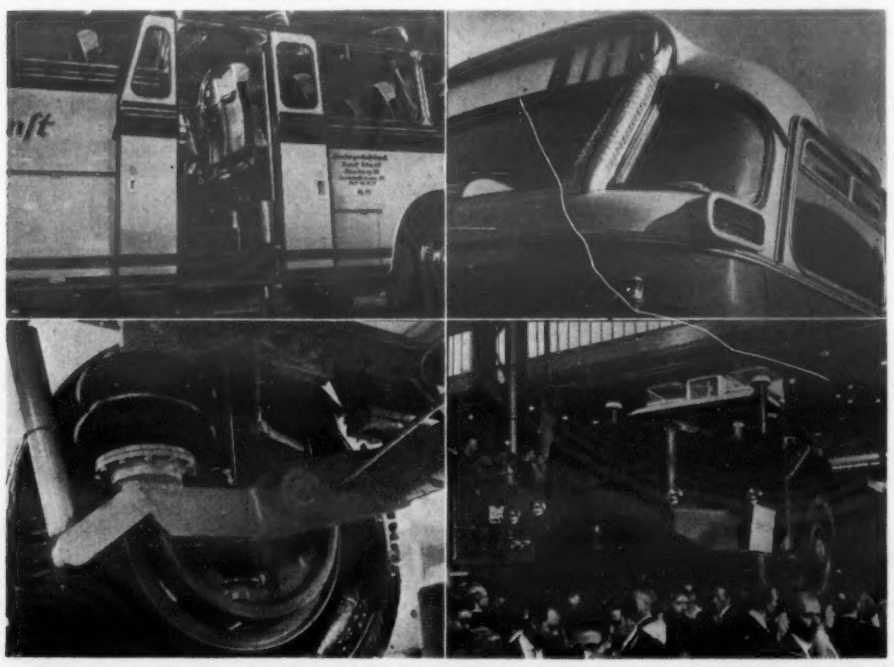
In the demonstration park, itself an exhibition of more than 200 vehicles of all types, a Commer fitted with the multi-fuel engine and equipment to enable it to run on four different fuels attracted considerable attention. The vehicle carried a full test load in contrast to many German demonstration units; during a brief run we could see for ourselves the ease with which the change-over from one fuel to another is effected. In less than 10 minutes the Commer was operated on four different fuels ranging from derv to kerosene. Engines possessing the ability to run satisfactorily on different fuels can be of considerable value even to civilian operators in remote or primitive territories, although their main application will be for military purposes. Apart from the foremost German exponent of this principle, M.A.N., several other makers have adapted their power units to run on a variety of fuels and show these engines at Frankfurt. M.A.N. has recently concluded licensing agreements with several European and overseas manufacturers under which these will incorporate the so-called M-combustion system in their engines.

Greater Prosperity

Despite the effect of the prolonged uncertainty over the new road-vehicle regulations mentioned earlier the economic difficulties of most of the heavy-vehicle makers which were so apparent two years ago have eased considerably; this is due, no doubt, to a large extent to the orders received for military vehicles. Germany has always built specialised types for just about every purpose under the sun, and the preponderance of vehicles devoted to salvage, emergency and civil defence duties reveals German trends on these lines. Little use is made of structural plastics; most applications of such materials are to interior panelling, wheel arches, etc. An exception is a frameless refrigerated van body on a Mercedes O 319 chassis. Built by Schenk, this uses two thin plastics walls with a 2¾-in. plastics foam filler which acts as an insulating material. After being introduced by the vacuum method this material hardens sufficiently to enable all fittings, hinges and so on to be screwed directly into the body shell.

Largest of the commercial vehicle exhibits was the 700-b.h.p. engined Berliet desert vehicle which, with some clever showmanship, had been set up to dominate the centre of one of the principal halls. At the other end of the scale a rear-engined Goggomobil pick-up truck was introduced as an addition to that maker's range. Another vehicle with this engine position is the extremely interesting light-weight four-wheel-drive Haflinger, made by Steyr-Daimler-Puch. Powered by an air-cooled two-cylinder engine of only 643 cc., the Haflinger

(*Continued on page* 6)



Compressed-air operated doors on Auwäter coach for long-distance travel; details of exhaust pipe to roof level of Magirus Saturn II bus for Hamburg; below, Fischer system of air springing and independent wheel suspension for drawbar trailer; and, right, Berliet 700-b.h.p. engined Sahara vehicle

Seen at Frankfurt

(*Continued from page 5*)

will climb a 1 in 2 bank. Unladen weight of the basic platform-bodied version without cab is 11 cwt. and the vehicle can carry a 7-cwt. payload. Locking differentials are fitted on front and rear axles. The vehicle is also available in another form without front-wheel-drive but with a longer wheelbase. Steyr is also showing the new forward control 6-ton lorry in which the redesigned 110-b.h.p. engine has been moved well back in the cab to provide maximum comfort for the crew. Steyr recently absorbed the Austrian Saurer works and can now offer an extended range of commercial vehicle and bus chassis, although Saurer types will continue to bear the old name.

Orenstein and Koppel double-deck bus for one-man operation in Stuttgart; a joint M.A.N.-Krauss-Maffei product, the 110-passenger Metrobus with rear engine; and right, Magirus bus for one-man Schnellbus services in Hamburg, with an unladen weight of roundly 6 tons

Twin Steering Peculiarity

Having only recently entered the German market, D.A.F. vehicles have readily found favour in that country. Within the last few months over 50 of these Dutch-built types have been sold; 12 of these are in use as truck mixers by the German subsidiary of the Ready-Mixed Concrete Company. Introduced some time ago the Mercedes LP 333 chassis with two steered axles is now also being built as a tractor for semi-trailers. In order to accommodate higher kingpin loads the middle axle has been moved towards the rear and is now closer to the driven axle than to its steered partner at the front. A steering system to facilitate easy reversing of semi-trailers developed by Chr. Dinkel uses a compressed-air circuit to sense the relative movement of two stops on the fifth wheel and to transmit this to the rear axle steering gear. The device becomes operative only when reverse gear is engaged on the tractor.

Another attempt to reconcile to some extent the haulage industry with the German railways' drive for a greater share of the goods traffic now moved by road is the 20-ton container vehicle demonstrated by Graaff-Elze. Possessing some resemblance to the American Flexivan system the Graaff prototype consists of a chassisless semi-trailer box van body which under its outer extremity carries a small turntable. After backing the outfit over the side of any railway platform or dropside truck the trailer bogie is unlocked from the body and by means of hydraulic rams the bogie lowers the end of the body so that the turntable rests on the deck of the rail vehicle. The tractor then backs the body, which slides along guide rails on the turntable face, so that the centre of the load is above the pivoting point. The tractor is then uncoupled and the container, still at a right angle to the rail truck, can be revolved manually to its correct travelling position. Four levelling rams, again hydraulically operated, are extended to support the container. The amount of maneouvring space on both sides of the track necessitated by the present method of loading would appear to weigh heavily against the Graaff system, although the advantage of not requiring specially fitted rail rolling stock is of great importance.

Suspension Progress

Air springs are shown on a number of trailers and on the rear axle of the Henschel HS 120 tractor chassis. Of the foreign exhibits the French Coder system of progressive rubber suspension for semi-trailer bogies is noteworthy. The advantages of pneumatic suspension have been more fully accepted by the bus exhibitors whose large city service vehicles are, almost without exception, air-sprung. Similarity in the engine location of various makers' new p.s.v. models has been arrived at by a careful study of the requirements of large German operators, Hamburg in particular. The German trend of recent years towards the rear-engined vehicle has now spread to the underfloor layout. In the Büssing, Kässbohrer and the new M.A.N.-Krauss-Maffei crush loaders the underfloor engine moved to a position behind the rear axle has made for exceptionally good accessibility for routine servicing and maintenance. M.A.N., which has taken over the bus-building programme of Krauss-Maffei, presents the Metrobus, a 33-ft. vehicle (this seems to have become a new German standard length) for a maximum load of 110 passengers. Of great interest is the intelligent use of colour in the interior and exterior decor of the new buses. Often each row of seats is given a different upholstery colour and, in the case of vehicles for one-man services, the exit door is made to appear from the outside to be almost indistinguishable from the rest of the body whilst the front entrance door is picked out in a different colour. This is a subtle way of directing passengers worthy of imitation.

Mercedes-Benz has introduced a new city service bus derived from the rear-engined O 321 type which in a few years has become Germany's best-selling vehicle in this class. Designated O 322, the new vehicle is air suspended and provides 32 seats within a total capacity of around 95 passengers. Incorporating a thermostatically-controlled hydrostatic fan drive, a feature also found on several others makers' stands, the 120-b.h.p. engine is rubber-mounted on a sub-frame at the rear. Exhaust gases are led to roof level through a pipe system which admits extra air into the exhaust, thus diluting the gas and lowering its temperature. Another unusual feature is the compressed-air actuation of the handbrake, which now merely requires the movement of a small dashboard lever and does away with the physical effort at every stop.

Making its world debut at Frankfurt is this Steyr - Daimler - Puch lightweight cross-country vehicle powered by a 643-cc. air-cooled engine

Air-Conditioning in Buses

Kässbohrer, which has taken over production of the Swiss-designed Metrac cross-country vehicle (now renamed Flexmobil) has recently supplied several Setra buses to the Ghana Transport Board. These vehicles are equipped with a full system of air-conditioning of Stone-Carrier manufacture. Vehicles outside the exhibition grounds include a Henschel trolleybus and an Orenstein and Koppel double-decker arranged for one-man operation. This is the second of the type described in our article of December 28, 1958, and uses Büssing mechanical parts. Unladen weight of the vehicle is roundly 10 tons. Orenstein and Koppel also exhibits a disk brake for heavy commercial vehicles and buses. This utilises a fully-lined disk which is brought into contact with the rotating brake housing by mechanical or hydraulic means. It is claimed that tests have revealed very high efficiency and better heat dissipation than conventional and "partial" disk brakes.

Less than two days after the show opened the 100,000th visitor was admitted to the Frankfurt exhibition, of which the fairground atmosphere, with dozens of booths dispensing refreshments and souvenirs of every kind, contrasts strangely with the sobriety of other European events of this kind. There is an immense interest in the show and the importance attached to it is evident from the effect it has on life in the city, where every shop has taken the motor vehicle as the theme for its window displays.

Forthcoming Events

September 26.—Omnibus Society. Study tour of Crawley area. Meet East Croydon Station. 2.15 p.m.
Railway Students Association. Visit to Croydon, Merstham and Godstone Railway. Meet Coulsdon North Station. 2.15 p.m.

September 26-27.—Railway and Canal Historical Society. Week-end visit to Wakefield area and inaugural meeting of Yorkshire local group.

September 27.—Norbury Transport and Model Railway Club. Visit to Reading Corporation Transport.

October 2.—Railway Club. Kenneth Brown Memorial Lecture by Mr. A. J. F. Wrottesley, "Some Interesting Cases in Railway Law." At Royal Scottish Corporation, Fetter Lane, E.C.4. 7 p.m.
Institution of Highway Engineers. Paper by Mr. G. A. Jellicoe, "Motorways—Their Landscaping, Design and Appearance." At Institution of Structural Engineers, 11 Upper Belgrave Street, S.W.1. 5.30 p.m.

October 3-4.—Omnibus Society. Presidential weekend including visit to Sunderland Corporation Transport and annual dinner.

October 5.—Institute of Road Transport Engineers (Scottish). Paper by Mr. H. L. Parish, "The Development and Application of the 4-99 Diesel Engine." At Institution of Engineers and Shipbuilders, Embankment Crescent, Glasgow. 7.30 p.m.

October 6.—South Wales and Mon. Railways and Docks Lecture and Debating Society. Paper by Mr. E. J. Phillips, "Phases of Road Passenger Transport over the Years." At Angel Hotel, Cardiff. 6.30 p.m.
Institute of Road Transport Engineers (Eastern). Paper by Mr. E. B. H. Elsbury, "A Review for the Selection, Specification and Simplification of a Commercial Vehicle." At Swan Hotel, Bedford. 7 p.m.

October 7. Railway Students Association. Annual general meeting. At London School of Economics, Houghton Street, W.C.2. 6.15 p.m.
Institution of Naval Architects. Paper by Dr. E. C. P. Corbett and Mr. E. P. Hawthorn, "The Prospect for a Nuclear-powered Cargo Liner." At 10 Upper Belgrave Street, S.W.1. 4.45 p.m.
Electric Railway Society. Paper by Mr. J. G. Bruce, "Keeping Underground Wheels Turning." At 153 Drummond Street, N.W.1. 7.15 p.m.
Institute of Road Transport Engineers (East Midlands). Paper by Mr. J. F. Moon, "Transport Developments in the U.S.A.—1957." At Mechanics Institute, Nottingham. 7.30 p.m.

October 12.—Institute of Transport. Presidential address by Mr. R. G. Grout. At 66 Portland Place, W.1. 5.45 for 6.15 p.m.

October 12-16.—International Air Transport Association. Annual general meeting. In Tokyo.

October 26-28.—Road Haulage Association. Annual conference. At Bournemouth.

November 12.—Public Transport Association. Annual dinner. At Connaught Rooms, Great Queen Street, W.C.2. 6.45 for 7.15 p.m.

THE FUTURE OF MUNICIPAL TRANSPORT

Possible Methods of Preservation

By Councillor W. ALKER, Chairman, Bury Corporation Transport Committee*

THE question arises as to whether municipalities have any justification or reason for remaining in the industry at all and if so why they should have the will to do so. The municipal undertakings do not, as a general rule, aim to make a profit. Even if they did so, restrictions are now placed on its being used for the relief of rates, as once was possible. It is rather Gilbertian to find that company operators have been permitted to increase their fares to maintain profit levels, whilst municipalities are only allowed to make such increases as will prevent them running too far into debt.

If, then, the municipalities are not in the business to make a profit the only other reason for their continued existence is that they have the will to provide a social service for the community, which is a right and proper thing for a municipality to do. At the present time that social service is financed by the fares paid by the community using it, but, granted that the will exists to provide the service as a social necessity, is this method of financing the best for all concerned?

Value of a Service

It can be seen from recent reports that bus facilities in thinly-populated areas are rapidly becoming impossible from the economical viewpoint and the problem for the communities in these areas is serious. Although many more people are finding their own means of transport—thus adding to the congestion in the towns—there are many who have to rely on public services. Many of these services, though uneconomic, are necessary, but how are we going to provide them? If the value of a service, or its workability, is measured only in terms of finance then we come to a dead end.

But surely there are other considerations. The social amenity value of a service is hard to measure —nevertheless it is very real. Some industrial concerns are taking over responsibility for providing transport for their workers. They may be pointing the way to a solution—that industry ought to pay for some part of the service. The question is why cannot industry do this for the public services they themselves need to keep their factories manned. As for social communication, why should the public transport providers have to bear all the losses and disadvantages of operation?

Compensation to Operators?

In the future the whole problem of municipal transport and also that in the rural areas, might well be re-examined, in the light of "compensation" to operators, for providing services at peak periods which are uneconomic in relation to the provision of all-day services, and for providing rural services which are uneconomic. It is important that some fresh thinking should be exercised in this field of socially necessary but financially disastrous transport provision.

It has been suggested in some quarters that consideration could be given to a transport system financed entirely from the general rate fund. This would, in effect, mean that no fares would require to be collected with the consequent saving in staff. To offset this apparent advantage is the fact that a large increase in the general rate would be necessary and this would not be equitably shared by all residents.

Rateborne Transport Unlikely

There are many other difficulties arising from this method of finance, including the operating of joint services with the profit-making company operators and the places where the companies operate entirely in lieu of the municipal operators. Where does one draw the line for rateborne transport costs—would it cease at the borough boundary with payments made for intertown travel? It has been my experience that, generally speaking, the public is prepared to pay a reasonable price for a reasonable service and because of this I am convinced that total rateborne transport is not a policy suitable for the foreseeable future.

Interrunning has grown to such an extent that municipalities can no longer concentrate on a parochial outlook but are drawn into discussions of joint policies. This, in my view, is not a bad thing. As local authorities we have responsibilities to our own localities but we cannot live in isolation.

Urban Congestion

It was estimated that four million vehicles would be licensed in 1959 and 12½ million are forecast for 1969. The greatest problem we face is whether we shall be able to keep our vehicles moving at all or whether we shall slowly grind to a stop. One of the inexcusable follies still being perpetrated is the planning and building of huge new office blocks and other premises in the most heavily congested areas of our towns and cities. Mass transport aided the growth of the centralised city with its business areas and large shops; individual transport now threatens to bring these activities to a halt.

It becomes increasingly clear that steps must be taken to prohibit all kerbside parking in the inner zones of our cities if the cities are to survive at all. On the other hand, car parks in the town and city central areas, whether on the surface or underground, and however adequate they may be, will only succeed in attracting more and more motor cars to the area and will thus add to the congestion in the street. It would appear obvious, therefore, that the car parks must be on the outer fringes of these areas, leaving public transport to deal with the traffic in the central area.

Abolish Bank Holidays

Two somewhat revolutionary suggestions are worthy of serious consideration. Firstly, bank holidays might be eliminated and compensated by an increase in the continuous holiday period. The social circumstances in which bank holidays were introduced no longer exist and they have become an expensive anachronism. Secondly, we might with considerable advantage eliminate the existing conception of a weekend break. Objections to this on religious grounds are bound to arise, but many people already have to work throughout the weekend—including transport workers themselves. It is not suggested that anyone should work seven days a week, but rather that the offices, shops and factories should operate for the whole of the seven days with their staffs on five days, spread over the seven. The move would be equivalent to an increase of 10 per cent in the national productive capacity and might even provide the means by which a four-day working week could eventually be achieved, without any decrease in efficiency.

Still assuming that the future will see a continuance of municipal transport, can we truthfully say that it is organised on the most efficient and economic basis? At present we cling to the traditional method of committee control, with the town council acting as the ratifying authority. A professionally-trained man is appointed to manage an undertaking on the basis of a policy laid down by the committee. He should be allowed to do so. It is the job of the committee to be a policy-making body, but only too often do they break into the field of administration. Then there is a delay until the council exercise their overriding power to reject, confirm or amend anything decided in committee.

Freedom to Manage

I believe that if the present set up is to operate successfully in the future then members of a transport committee must subordinate all local affinities and personal considerations and concentrate on what is best for the community at large. They must be given the confidence of the council and empowered and encouraged to organise their public service without the delays, and uninformed, and often solely destructive criticism which occur with the present procedure. On the other hand, the policy having been decided by the committee, the general manager should be given the utmost freedom to implement that policy.

It is not my intention to make out a case on behalf of the trade unions—they are quite capable of looking after themselves. They should, however, remember that whilst they are responsible for the welfare of their members they are an integral part of the industry and they have a responsibility to the public we all serve.

I am of the opinion that the procedure of having visiting committees of the N.J.I.C. has outlived its usefulness, if indeed it ever had any. In the future they could advantageously be replaced by three stages of negotiation. Firstly, local negotiations should take place between the district officer of the trade union and the local authority, through its appointed manager: if this is abortive then stage two would be to refer the matter to the N.J.I.C. who should hear evidence from responsible officers of both sides and come to a decision. In the event of failure to agree in the N.J.I.C. the matter should be referred as stage three to an independent arbitrator mutually chosen, whose decision would be final and binding on all parties.

Increased Efficiency Essential

Somewhere in the hiatus between the upper and lower levels of the trade unions still lies the promise of increased efficiency which was coupled with a wage award made in 1951. There has been no substantial sign of it emerging to date. I think that in the future trade unions, right from the top level down to the branch officials and the members, have got to realise that though wage claims will still be made they can only be granted if there is genuine and factual increased efficiency to provide the money. The present way will eventually price public transport out of the market and very soon now the point of no return will be reached.

Whilst the trade unions must realise this the employers' side of the National Joint Industrial Council must bear some degree of responsibility for our present difficulties. In the future it must have the will and adaptability to attack our problems rather than become unwittingly involved in ineffective and undignified rearguard actions.

Measurement of Work

In the past I have been a great advocate of the national rate but I am gradually inclining to the view that whilst a national rate may be the ideal it does not necessarily comply with the requirement of equal pay for equal work. Most industries have some form of research department, either as individual firms or as groups. I suggest that the employers' federation might profitably follow their example in the future and institute a research section. One avenue which certainly needs research is to find some means of measuring and defining the work done by our platform staffs, with a view to establishing something more flexible and adaptable than a national rate.

The needs of the public for a wider range of travel have to some extent been met by interrunning arrangements between adjacent undertakings or groups of undertakings. Such arrangements work reasonably well, but are not entirely satisfactory as each undertaking maintains its individual conditions and parity of fare structure in its own area, often to the confusion of the passengers but never to their advantage. Future policies should, therefore, allow for the development of the present trend and quite logically the question of integration of services must follow. What has to be determined is where such integration should begin and how far it is possible for it to extend successfully without losing touch with the public it serves.

Integration Possibilities

There are three possible lines along which integration could develop, namely, (1) complete and entire integration of all passenger transport operators of the country, or in a word "nationalisation"; or (2) integration of road passenger transport undertakings into groups covering county or larger areas working in conjunction with the B.T.C.; or (3) a system of "parallel integration" whereby the control of each group of services would be vested in its parallel organisation, each such organisation being a constituent part of the next larger one.

The B.T.C. is now working towards integration in a negative manner by ruthless pruning of branch-line services. It is not solving the transport problem by its actions, it is merely throwing the onus of providing a necessary service to the community on to the road operators where railways are obviously uneconomic. In effect it is saying that rail should do one operation of transport and road the other. The fact that these mainly rural services

(*Continued on page* 10)

* Abstract of a paper presented to the annual conference of the Municipal Passenger Transport Association in Edinburgh on September 23.

NEWS FROM ALL QUARTERS

Newcastle Parking Meter Proposal

The traffic committee decided last week to ask Newcastle upon Tyne City Council to install about 2,000 parking meters in the city centre to ease congestion. There would be three zones, one with 300 meters providing parking time of 30 minutes, another with 700 meters for around one hour, and the third with 1,000 meters allowing two hours' parking. The charge in each zone would be 6d.

Ticketless Passengers in India

One out of every 20 railway passengers in India travels without a ticket causing a yearly loss of over Rs.50 million. This was disclosed by Mr. Shah Nawaz Kan, Deputy Minister for Railways, Government of India, at a meeting in New Delhi. He said that the railways had employed 12,000 men all over the country to combat the evil of ticketless travel and a sum of Rs.23 million was being spent every year on their maintenance.

Grantham—Doncaster Diversion

In connection with the modernisation of the East Coast main line from Kings Cross to the north, extensive engineering work is being carried out between Grantham and Doncaster during four consecutive weekends. All main-line trains leaving Kings Cross between 7.30 p.m. on Saturdays and 4.45 p.m. on Sundays until October 11 will be diverted via Grantham—Lincoln—Doncaster. Trains from the north will be similarly diverted.

TV to Solve Rail Wear Problem

Rhodesia Railways has enlisted the aid of television in an attempt to find out why diesel locomotives wear out railway lines more quickly than ordinary steam engines. The Umtali route was chosen mainly because it is plagued with sharp curves and gradients. A television camera was focused on one of the front drive wheels, and in a specially-fitted private coach behind the loco a closed-circuit television set showed the wheel and its movements. Ciné films and a tape recording of the speed and mileage were synchronised to give the analysing engineers a clear picture of the train's movements. The results will not be available for some time.

Weymouth Boat Trains from Waterloo

All London boat trains for the Channel Islands are to run to and from Waterloo from November 2. At present Waterloo is used only for boat trains connecting with Channel Islands steamers based on Southampton. Passengers travelling via Weymouth have had to catch boat trains from Paddington. This will mean faster journeys for Weymouth passengers. The Channel Islands service is being cut to three sailings each way a week this winter and steamers will sail from Southampton on Wednesday night and from Weymouth on Monday and Friday nights. On all three nights the down train will leave from Waterloo at 9.15 p.m. All the down boat trains will call at Basingstoke and the Weymouth boat trains on Mondays and Fridays will also call at Southampton Central and Bournemouth Central.

Closing Date for Swansea and Mumbles

The Town Clerk of Swansea reported at the last council meeting that the South Wales Transport Co., Limited, had decided to abandon the Swansea and Mumbles Railway on January 1, 1960, replacing it with buses. A spokesman for the company said that if the corporation desired it consideration would be given to handing over the relics of the railway, including the specially-constructed coach built for the 150th anniversary celebrations.

Engine Works Closing

Forth Bank locomotive works at Newcastle upon Tyne, owned by Robert Stephenson and Hawthorns, Limited, are to be closed down. The works, which are as old as railways themselves employed between 800 and 900 men, and these are to be paid off gradually as contracts are completed. It is expected that the works will be finally closed about next February. Some of the displaced men will be offered other work at Darlington.

Closing of Eastern Region Stations

The Eastern Region announces that on and from Monday, November 2, Wentworth Station (Yorks), located on the line between Barnsley (Court House) and Sheffield (Midland) will be closed to all traffic. Passengers will be catered for at Elsecar and Hoyland and at Chapeltown South, and by the road services operating in the area. From the same date passenger train services will be withdrawn from Beckingham on the line between Doncaster and Gainsborough. On the North Eastern Region, Lockington Station, on the Hull—Driffield line, due to close on September 14, will remain open for the time being.

Next Road Construction Projects

In a speech in his constituency (Woking) this week, the Minister of Transport, Mr. Harold Watkinson, gave the news that the 28-mile West Midland motorway from Birmingham to join the Ross Spur motorway (MODERN TRANSPORT, October 18, 1958) would shortly be authorised at a cost of £9 million, also the £3 million Staines bypass, including a bridge over the Thames (October 25, 1958, issue). Early next year it was hoped to commence work on the new Medway bridge, the first stage in construction of the Medway motor road. Work had already started on the first viaduct on the Birmingham—Preston motorway extension.

Edinburgh West End Junction

Edinburgh Corporation has removed barriers at the West End junction in Princes Street to free flow of traffic, after consultation with the Scottish Home Department. Since 1948 this junction has been barred to traffic from the northerly approaches. This kept Queensferry Street and Hope Street traffic away from the main flow and resulted in a variety of devious routes being necessary. Now the West End junction is a free area except that Hope Street traffic must not turn left into Princes Street. Bus routes will be rearranged to meet the new situation and this will mean a saving in the region of 100,000 miles per annum for the transport department. The scheme is experimental.

COMMERCIAL AVIATION

Record Clearings

WINTER SILVER ARROW

THERE was a 24 per cent increase in international airline business settled through the International Air Transport Association Clearing House in London during the first six months of this year as compared with the same period of 1958. The total cleared was $449,078,000 (£159,670,000) whereas last year's January-June total was $362,133,000 (£128,651,000). The process eliminated the need for cash settlement of 88.8 per cent of the value of all transactions cleared in the six months under review. There were six individual company offsets in the monthly clearances which exceeded 99 per cent. The most striking of these was an offset of 99.9 per cent in May whereby one airline's turnover of £30,577 was settled by the single payment of £1. While this clearance was modest in total, its offset ratio represents the nearest approach to infinity the clearing house has ever had. Interclearances between the I.A.T.A. Clearing House and the Airline Clearing House, Inc., Washington, totalled $17,470,274 for the first half of the year. This was an 18 per cent increase on last year's $14,805,865 in the same period. The offset ratio for the 1959 interclearances with A.C.H. averaged 94.2 per cent. By the end of June, I.A.T.A. Clearing House served 97 accounts, of which 68 were member airlines, 22 were domestic airlines in the U.S., and seven were special accounts.

Hamburg Airport Extension

The city state of Hamburg is to extend its airport at Fuhlsbüttel. The Senate of the State of Hamburg has given its permission for an extension to be made to the airfield's runways to enable it to carry jet traffic. Pan American, S.A.S. and Air France will be operating jet services to and from Hamburg by next spring. Cost of the extension is DM100 million, or about £8,340,000.

Silver Arrow Winter Service

The Silver Arrow service from London to Paris, operated by Silver City Airways in conjunction with the British and French railways, is to run throughout the winter for the first time. The service is also being accelerated from October 4 to take just over 6 hr. from Victoria to Gare du Nord for a return fare of only £8 19s. Announcing this new winter capital-to-capital link, Silver City Airways said: "People have proved so enthusiastic about the Silver Arrow service during the summer that we have now decided to run it daily throughout the winter as well. An impressive feature of the extra traffic we are carrying is the increased number of business people who are choosing this route. We are very pleased to be able to cut the journey time without increasing the fare."

Reliability Test for DC8

Recently a Douglas DC8 intercontinental model returned to Long Beach, California, following a 13,208-mile round trip to Europe as concluding portion of F.A.A. functional and reliability tests. The aircraft flew nonstop the 5,823 miles from Long Beach, California, to London in 10 hr. 26 min. Among the 27 passengers aboard the DC8 were three F.A.A. officials in additional to the chief Douglas test pilot, Mr. B. A. Foulds and a crew of three. The route segments demonstrated to the F.A.A. officials included London—Amsterdam, Amsterdam—Madrid and Madrid—Montreal. The DC8 and all systems performed without a hitch on this flight which immediately followed similar nonstop demonstrations across the U.S. continent, to cover nearly 20,000 miles in 10 days.

T.W.A. Domestic Traffic

Trans World Airlines experienced the best July in its history when the airline flew 18 per cent more revenue passenger-miles on its U.S. domestic routes than during the same month last year, according to Mr. E. O. Cocke, senior vice-president and system general manager. More than one-fifth of T.W.A.'s domestic traffic in July was flown in jet services. Mr. Cocke said that since the inauguration of jet service on March 20 through to the end of July, T.W.A. 707s had accumulated a total of nearly 318,000,000 revenue passenger-miles. Also during this period, more than 94 per cent of the jet seats were filled. Operationally, the T.W.A. jet fleet has completed better than 99 per cent of its scheduled mileage. During more than four months of operation, T.W.A. has had to cancel only one of its 1,434 jet flights.

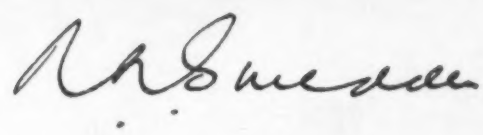
Gazelle Type Approved at 1,650 s.h.p.

The Napier Gazelle free turbine recently received Ministry of Supply 150-hour helicopter type approval, at 1,650 s.h.p. The Gazelle, which powers the Westland Wessex naval helicopter and the Bristol 192 twin-engined helicopter, has shown itself as an outstanding engine both in design and performance. From initial conception to its first rehearsal type test at 1,100 s.h.p. only 17 months elapsed, and shortly after this the engine underwent a further three rehearsal type tests in succession, completing just over 500 hr. test running to the M.O.S. cyclic requirements, without receiving anything more than routine attention. The Gazelle is now in quantity production for the Royal Navy at Napier's Liverpool factory.

Air Conditioning a DC8

The air-conditioning system in one of Trans-Canada Air Lines' new Douglas DC8 jet liners would comfortably cool 14 good-sized homes. Yet each of the two separate refrigeration units weighs less than 150 lb., exclusive of controls. Built by the Carrier Corporation of Syracuse, N.Y., for Douglas, they are equivalent to a conventional refrigeration system weighting approximately 5,000 lb. The compressors in these miniature units weigh only 11 lb. apiece, making up for their tiny size by turning at more than 90,000 r.p.m. The turbine operating the compressor is driven by air from the Rolls-Royce Conway by-pass jet engines. Cabin air is changed every 3 min. Flying at close to 40,000 ft. where the temperature may be 45 deg. below zero on a summer day, cooling rather than heating is the greatest problem. This is because the cabin is pressurised at 40,000 ft. to the equivalent of 8,000 ft. The thin, cold air outside is compressed inside the cabin. This causes the kinetic energy of the molecules to turn to heat. As the air emerges from the compressors on its way to the cabin, its temperature is about 235 deg. Temperature of this air is lowered to about 90 deg. by running it through a series of tubes cooled by the cold outside air. But with each of up to 127 passengers emitting warmth equal to that of a 100-watt bulb, temperature inside the cabin would still be over 100 deg. The solution was the Carrier-built air conditioner constructed of light alloys.

INSTITUTION OF LOCOMOTIVE ENGINEERS



MR. R. A. SMEDDLE, M.I.Mech.E., M.I.Loco.E.

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President of the Institution of Locomotive Engineers for the current year, as already recorded in MODERN TRANSPORT, Mr. R. A. Smeddle, chief mechanical and electrical engineer, Western Region, British Railways, on Tuesday of this week delivered his presidential address, of which an abstract appears elsewhere in this issue. Mr. Smeddle was educated at Aysgarth and Harrow. He served in the R.A.F. in France during the latter part of the 1914-18 war and also in the Army of Occupation. Towards the end of 1919 he joined the North Eastern Railway and became a pupil of the late Sir Vincent Raven, and afterwards of the late Sir Nigel Gresley. Subsequently he gained experience in the running department of the London and North Eastern Railway at Leeds, and the traffic department at York. In 1925, he was appointed assistant works manager at Cowlairs and three years later he became assistant carriage and wagon works manager at York. In October, 1929, Mr. Smeddle was transferred to London as outdoor carriage and wagon assistant, and in April, 1931, returned to Cowlairs as works manager. In 1936 he was appointed locomotive works manager, North Road Works, Darlington, retaining this position until June, 1941, when he was appointed mechanical engineer, Darlington, and took charge of Shildon, Faverdale and Walker Gate works, in addition to North Road. In June, 1945, the carriage and wagon works at York were also put under his charge. In October, 1949, Mr. Smeddle was appointed deputy mechanical and electrical engineer, Southern Region, British Railways, which appointment he vacated in 1951 when he became mechanical and electrical engineer, Western Region. The appointment was retitled on January 1, 1955, and on July 1, 1957, its responsibilities were widened to include those of the carriage and wagon engineer and also serviceability of all locomotives, rolling stock and outdoor machinery; subsequently, on February 19, 1958, the road motor engineering department was brought within his overall responsibility. He is a member of the Institution of Mechanical Engineers.

BOOK NOTICES

Trade and Technical

SOME RAILWAY TEXTBOOKS

THE LOCOMOTIVES OF THE GREAT WESTERN RAILWAY. PART VI—FOUR-COUPLED TANK ENGINES. (Kings Heath, Birmingham, 14, Mr. T. J. Edgington, Railway Correspondence and Travel Society Hon. Publications Officer, 57 Heathfield Road. Price 10s. 6d.) Beautifully stocked with illustrations and carefully compiled as usual this part of the monumental effort deals with four-coupled tank engines from 1856 to the present day. It is largely from the pen of Mr. F. J. Tabor. A fine-colour plate of a 2-4-0T in the Armstrong livery as built in 1874 is by Mr. H. M. Le Fleming.

* * *

ROAD HAULAGE. By C. S. Dunbar. (Hampton Court, Surrey: Ian Allan, Limited. Price 2s. 6d.) An excellent addition to the publisher's A.B.C. series is this 64-page book on road haulage; it constitutes a companion volume to the previous one on British Road Services vehicles and is by an author well known as an express carrier and consultant. There is a useful brief history of haulage, particulars of the R.H.A. and its offices, notes on the licensing authorities and a novel glossary of terms in road freight transport parlance. Excellent illustrations show current lorry types.

* * *

LONDON TRANSPORT RAILWAYS. (Hampton Court, Surrey: Ian Allan, Limited. Price 2s. 6d.) Long-established in the A.B.C. series initiated by Ian Allan is the one dealing with the surface and tube stock and the service locomotives of the London Transport railway system. Headlight codes are another useful feature. Although not official in character, it has had the benefit of guidance from Mr. J. G. Bruce, mechanical engineer (running) of the Underground, and with its first-class selection of photographs it should be of lively interest to the amateur and a useful aide-memoire to the professional of railways.

* * *

SOME INDUSTRIAL RAILWAYS OF IRELAND. By Walter McGrath. (Cork, Ireland: Author, 5 Fern Cliff, Belvue Park. Price 7s.) It can be but rarely that so many fascinating minor railways have been chronicled between a pair of covers. Mr. McGrath has a flair for discovering minor industrial railways and details of their careers and he has exercised it to full measure in describing 14 such ventures, from a 5 ft. 3in. gauge line going to a distillery in County Cork to the German-equipped narrow-gauge tracks serving the Shannon power scheme while it was under construction. From Haulbowline Dockyard to the narrow-gauge project on Achill Island, from lines serving aerodromes and the purposes of forestry to the 1¼ mile of 2-ft. gauge track that brought supplies to the Marconi transatlantic radio station near Clifden, interest is continuous. The electric railway installed by George Percival at the Cork Exhibition of 1889 is one of the unusual lines described. In 1932 a German 15-in. gauge line with miniature 4-6-2 steam locomotives filled a similar role. Four provincial horse tramways (Galway—Salthill, City of Derry, Glen Anne—Loughgilly and Warrenpoint—Rostrevor) are also described and illustrated and a final section deals with four industrial lines which have survived to the present day.

* * *

FERODO BRAKE SERVICE GUIDE. (Derbyshire: Ferodo, Limited, Chapel-en-le-Frith. Price 40s.). Congratulations are due to Ferodo, Limited, on the publication of this new manual, which forms one of the most comprehensive and practical handbooks on one particular component of the motor vehicle that has yet come our way and the like of which we would have foregone many weeks' pocket money to possess in the days when we served our time. The book describes the operation, identification and proper care of brakes fitted to all types of vehicle built by the principal producing countries and its 200 12 in. by 9½ in. pages of easy-to-understand textual matter are well sprinkled with excellent line illustrations and graphs. Compiled primarily for the garage and maintenance man rather than the designer, it nevertheless describes the main principles of modern braking systems and how they are applied, providing valuable guidance for the instructor or student not otherwise conveniently available. While we would take issue with the writer or writers on dogmatic views expressed on the relative merits of decelerometer and distance-to-stop methods of brake testing for practical purposes, the value of the work is undeniable.

* * *

MODERN RAILWAYS, THEIR ENGINEERING, EQUIPMENT AND OPERATION. By Cecil J. Allen, F.R.S.A., M.Inst.T., A.I.Loco.E. (London: Faber and Faber, Limited, 24 Russell Square, W.C.1. Price 45s.) When the publisher decided to bring out a book which would give the ordinary man an insight into what a modern or modernised railway is about it sought the services of the doyen of railway writers for its production; the book thus represents a monumental labour over many months by Cecil J. Allen, the results of which should be a source of pride to the author and of pleasure and interest to the reader, be he lay or professional. Not unnaturally, as a railway engineer, the survey, engineering and construction of the way and works occupy the early chapters; then come descriptions of motive power—steam, electric and diesel—with some references to performance, the scientific and descriptive recording of which has been so closely associated with C. J. A. The provision of passenger accommodation is given a very proper place in the survey and as important a place is given to the suburban passenger problem as to the evolution of high-speed main-line services. Nor is the ever more significant handling of freight neglected. Operation, signalling, train control, station design and working, miscellaneous dock and marine activities, and the all-important subject of administration have their place in Mr. Allen's racy and readable account, which runs to 282 large pages and 10 appendices. Production is good and attractive and the author's vast experience has reduced errors to the minimum in dealing with all the manifold subjects that form part of railway organisation in 140,000 words, but we hope the Fishguard—Waterford service will be restored to its rightful owner in the course of the next edition. One of the joys of the book is its excellent illustrations—247 from photographs and 22 from line diagrams. The note for these is set by the first—a huge South African 4-8-2, showing what can be done in locomotive development on the 3 ft. 6 in. gauge—and throughout the plates depict what can be seen today, and usually the latest of practice, in great contrast to the majority of railway literature which is apt to dwell on the past. *Modern Railways* points plainly to the future role of the railways as a transport machine of undiminished importance for the tasks to which it is suited.

LONGMOOR OPEN DAY

Intelligent Recreation

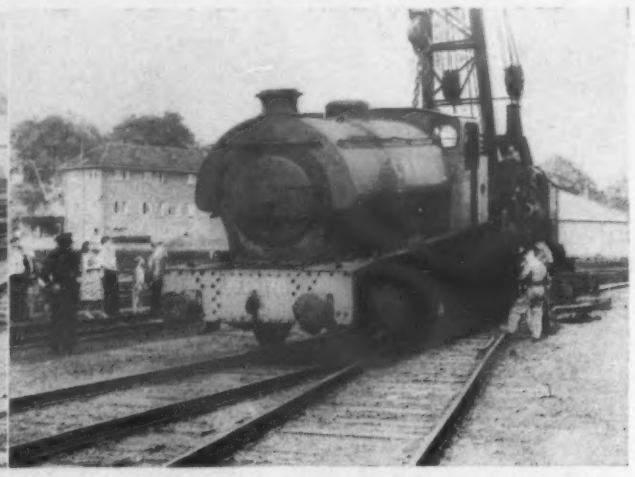
PASSENGERS on the Southern Region who passed through Liss on the afternoon of Saturday, September 12, and saw a large crowd of trippers boarding a train of vintage rolling stock headed by a bright blue locomotive, may well have been perplexed. For although it boasts a regular public train service, the Longmoor Military Railway is not much given to self-advertisement, and the crowds at Liss were in fact visitors attending the first public open day held at the Royal Engineers Transportation Centre, Longmoor, since 1955. Clearly the decision to revive this popular event was welcomed by many parents who sought to give their children the benefit of a really first-class entertainment.

Indeed, with trains and locomotives to ride on, a 45-ton breakdown crane in action, fork-lift truck rides, military band and parade ground displays, models galore and numerous amusements, everyone, including the ladies, found more than enough to occupy their time. The comment of the young woman who remarked "the Army does these things so much better than the vicar," though a trifle unfair, does serve to illustrate the predilections of an age that finds an increasing pleasure in mechanical achievement. Above all we came away with the firm conviction that this was exactly the kind of intelligent recreation that children thoroughly enjoy, and would if more widely sponsored, provide an antidote against the corrupting influence of so much that now rates as popular entertainment. Some notes on the summer training programme of railway troops at Longmoor appeared in our August 22 issue.

B.T.C. TRAFFIC RECEIPTS: PERIOD NO. 9—1959

	Four weeks to September 6, 1959			Aggregate for 36 weeks		
	1959	1958	+ or —	1959	1958	+ or —
	(£ thousands)			(£ thousands)		
PASSENGERS						
British Railways	13,307	12,975	+ 332	100,022	99,825	+ 197
London Transport						
Road Passenger services	4,312	4,271	+ 41	37,409	31,648	+ 5,961
Railways	1,751	1,786	— 35	16,148	16,958	— 810
Provincial and Scottish Buses	5,714	5,584	+ 270	42,836	42,405	+ 31
Ships	1,424	1,231	+ 193	5,981	5,497	+ 384
Total Passengers	26,508	25,847	+ 661	202,596	196,333	+ 6,263
FREIGHT, PARCELS AND MAILS						
British Railways						
Merchandise and livestock	7,087	7,251	— 164	65,771	71,413	— 5,642
Minerals	3,144	3,018	+ 126	29,415	31,408	— 1,993
Coal and coke	7,100	8,097	— 997	74,416	85,153	— 10,737
Parcels, etc., by coaching train ...	4,179	4,124	+ 55	36,493	36,046	+ 447
Total Freight, British Railways	21,510	22,490	— 980	206,095	224,020	— 17,925
Others	4,359	4,153	+ 206	37,542	36,862	+ 680
Total Freight, Parcels and Mails	25,869	26,643	— 774	243,637	260,882	— 17,245
Aggregate	52,377	52,490	— 113	446,233	457,215	— 10,982

Comparisons are affected by the London Transport road services strike for May 5 to June 20, 1958



Queueing for footplate trips on "Kitchener," one of the two 2-10-0 locomotives on the Longmoor Military Railway and right, demonstrating one method of rerailing an 0-6-0 saddle tank on the Longmoor open day

TRANSFERRED TO B.T.C.

S.L.S. Hands Over "Gladstone"

AT the B.T.C. Railway Museum, York, on September 18, Mr. T. P. Hally-Brown, chairman of the Stephenson Locomotive Society, accompanied by Mr. A. J. Boston, vice-president, made a formal presentation of the historic locomotive *Gladstone* to the British Transport Commission. The locomotive has been on exhibition at York since 1927, when it was saved by the Society. Mr. T. H. Summerson, chairman of the North Eastern Area Board, and a member of the B.T.C., received the locomotive on behalf of the Commission. Among others present were Mr. H. A. Short, general manager, North Eastern Region, and Mr. J. H. Scholes, curator of historical relics, B.T.C. A circular brass plaque, 12 in. in diameter, engraved "Preserved in 1927 by the Stephenson Locomotive Society and presented in their golden jubilee year 1959 to the British Transport Commission," was presented simultaneously and will be fixed to the locomotive later.

The engine, designed by William Stroudley and built in 1882, was one of 36 similar locomotives built between then and 1891. It went into service at Brighton in January, 1883, and was withdrawn

"Gladstone" repainted

in December, 1926, after having travelled 1,346,918 miles. It was purchased by the Stephenson Locomotive Society in 1927 for preservation and, after being exhibited at Brighton for a week and at Waterloo for one day, was sent to the then London and North Eastern Railway Company's museum at York and formally handed over, on loan. During the war it was stored for safety at Reedsmouth.

The locomotive has been repainted and restored to its original condition and much research has been undertaken by the Society in order faithfully to reproduce the original livery. *Gladstone* is now possibly the most accurate restoration of any preserved locomotive in Europe. It is to be permanently preserved and exhibited.

MUNICIPAL TRANSPORT

(*Continued from page 7*)

covered by the branch lines which have been closed were uneconomic would not matter much if all transport were under one roof—the profitable and the unprofitable would even themselves out. On the other hand the highly profitable interurban diesel lines do not provide full transport facilities to the public, as many live considerable distances from the station and are entitled to transport facilities to points reasonably near their homes. Yet the diesel lines, running as they do in many cases parallel to local bus services, take the cream of the traffic and leave the road operator to struggle along with the unprofitable tails.

The second method of integration into county or area groups working in conjunction with the B.T.C. would bring the problems a little nearer to solution as county or area groups would not be affected by the parochial outlook which insists on two communities maintaining a bus service in parallel competition with a perfectly good diesel line. On the other hand such a group working in conjunction with the B.T.C. would be able to insist that the diesel-line service provided the intermediate facilities which are at present the only justification for the bus service.

Municipal Responsibility

Integration into such large areas would immediately involve the question of company operators coming under public control to a much larger degree than that currently exercised by the traffic commissioners, but it is my opinion that all stage-carriage services should be under public control whether by individual municipalities or groups thereof. Again, such a system would be cumbersome and its administration could easily lose touch with the man in the street. We have to remember that the average passenger makes eight to 10 local journeys for every inter-area journey and consequently is inclined to take a local view of traffic. The third method of parallel integration would cater for this demand.

I would suggest here that purely local traffic be the responsibility of each individual municipality, whilst intertown traffic should be the responsibility of a joint board made up of members from the various towns. This would be the initial step in a much wider scheme and could form a very firm foundation on which to build in the future. In short I consider that all we can do towards integration, with its many problems, is to build the first two terraces of the pyramid, which some time in a distant future may be completed.

CLASSIFIED ADVERTISEMENT

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.

RATES.—The minimum charge for classified advertisements is 7s. for 14 words or less, and 6d. for each additional word. The name and address of the advertiser is charged at the same rate. If a box number is used 2s. extra is charged to cover our name and address and postage. If set in paragraph form each paragraph is estimated separately. Official Notices and semi-display in the classified columns are charged at the rate of 40s. per single column inch.

SITUATION VACANT

TRANSPORT MANAGER required in London by a group of companies intending to reorganise existing company delivery facilities by formation of a group of delivery service from depots to be established throughout the country, to handle a variety of consumer products. Applications are invited from men with experience in this sphere with capacity to undertake the reorganisation necessary and thereafter to supervise an economical service. Write, giving age and particulars of past experience in confidence to Box No. 3820, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

INCENTIVE BONUS SCHEMES

Their Pros and Cons for Traffic Staffs

*By RONALD COX, M.Inst.T., M.I.R.T.E., Engineer and General Manager, Rochdale Corporation Transport Department**

I THINK it is fair comment to assert that the National Joint Industrial Council have adopted a most reasonable and unbiased policy and have collectively considered each incentive scheme on its merits. They have not stood in anyone's way and have encouraged, whenever possible, the introduction of local schemes which in their opinion are clearly incentive schemes. Any local authority backing an incentive scheme for its traffic staffs would presumably expect to procure economies in the scheduled hours paid in order to operate its services.

Any incentive bonus scheme would have the effect of varying the wages structure and it would seem that local variations could not only become embarrassing, but extremely dangerous bearing in mind the large amount of joint operation which exists between transport operators. Presumably the decisions taken by the employers' side of the National Joint Industrial Council are taken on a majority basis and schemes could therefore be approved or turned down on a marginal vote.

Review of Wages Structure

One wonders whether a general review of the wages structure and national agreement conditions with incentive schemes and merit bonus schemes ought to be undertaken as an alternative to authorising the introduction of pilot experimental schemes. In this connection it is worth while to study the relationship between the manual wage earnings in the tramway and bus services and those of manufacturing and other industries. Some comparable statistics—supplied by the Ministry of Labour and National Service—are shown in the accompanying table. The Ministry does not publish figures which relate only to traffic staffs.

COMPARATIVE EARNINGS AND HOURS WORKED—MANUAL WAGE-EARNERS

Date	Tramways and Bus Service Men 21 and over	All Manufacturing Industries Men 21 and over	All Industries Covered Men 21 and over
	AVERAGE WEEKLY EARNINGS		
Oct.	s. d.	s. d.	s. d.
1938* ..	72 2	.. 70 11	.. 69 0
1956 ..	211 7	.. 245 7	.. 237 11
1957 ..	234 11	.. 261 2	.. 251 7
1958 ..	229 2	.. 265 5	.. 256 8
	AVERAGE HOURS WORKED		
1938* ..	48·8	.. 47·8	.. 47·7
1956 ..	50·3	.. 48·2	.. 48·5
1957 ..	50·7	.. 48·0	.. 48·2
1958 ..	49·4	.. 47·3	.. 47·7
	AVERAGE HOURLY EARNINGS		
	d.	d.	d.
1938* ..	17·7	.. 17·8	.. 17·4
1956 ..	50·5	.. 61·1	.. 58·9
1957 ..	55·6	.. 65·3	.. 62·6
1958 ..	55·7	.. 67·3	.. 64·6

* The 1938 figures include London Transport Road Services.

Probably the most important principle in any scheme would be to increase revenue at minimum operating cost by the elimination of waste, and both the driver and conductor can contribute towards this end although the conductor would affect productivity more than his driving colleague. Any scheme worthy of operation would have to be easily and simply understood by crews and administrative staff and fundamentally give a large enough increase in wages to justify additional effort.

Increased Productivity

This poses again the question as to whether or not it is practicable to calculate increased productivity on the traffic side of our industry, and whether it could be dangerous to give a bonus to avoid increasing basic rates. Is there a lesson to be learned from the coal mining industry? Having regard to the wide variations in route earnings and to the greatly differing amounts collected by individual conductors, it would seem virtually impossible to introduce an individual scheme and the group type becomes the only possibility.

My final comment under this section relates to the problem of other staff whose duties are closely allied to those of drivers and conductors, i.e. transport inspectors, cash and depot clerks and ticket staffs, etc. Is it not conceivable that differentials would be affected and unrest created by any group incentive scheme which excluded them?

Balancing Unremunerative Routes

Every authority represented at conference will have highly uneconomical routes together with good revenue-producing routes and in the case of my own municipality the route earnings vary from as low as 12.75d.p.m. to as high as 44d.p.m. Any group scheme, therefore, is alleged to take into account the rough with the smooth, but the fact remains that bonus would be paid to employees manning omnibuses which are operating very much below cost. However one views this, it is difficult to envisage any real improvement in income from rural services and the only method available to operators to smooth out such wide differences in earnings is to compile duty schedules which embody both extremes, as is already general practice.

It is also worth while to study the cash paying-in statistics in the average municipal undertaking: for an approximate 8-hour day a conductor's takings can vary from £6 to £28 although it must be remembered that small returns do not necessarily mean that a quiet day has been experienced. It all depends on the local route conditions.

Seasonal Conditions

Of the 96 municipal undertakings in the British Isles very many serve seaside resorts, and to indicate how difficult it is in practice to assess revenue earnings, I obtained some information from a cross-section of these operators. A warm sunny day can cause a variation in a day's receipts ranging from +5 per cent at one resort to +56 per cent at another resort when compared with an average day's takings. Very hot weather can even reduce receipts by causing holidaymakers to sit on the sands and thus use the bus services to a lesser degree than if the weather had not been so hot. It would be well to remember that almost 25 per cent of our association are seaside or kindred operators and, together with all other authorities, are subjected to wide income variations.

We must infer that revenue alone is an unsound base for any productivity scheme, particularly bearing in mind the additional administrative problem due to the employment of seasonal staff. An equally strong case can be made out to indicate the difficulties which can be created by fares alterations in one's own operating area or in any jointly operated area, and it will readily be appreciated that much peak period work can take place whilst one's own vehicles are operating in another area.

The use of contracts, return tickets or runabout tickets also has an effect on revenue, and such projects as the development of housing estates can quite easily upset any standard and agreed revenue base. It would be fundamentally wrong, in my opinion, to accept a "standstill" assessment of revenue in any local authority.

Man-Hours

The first query that comes to mind concerns one-man bus operation which obviously halves the man-hours figure—but would it double a bonus? The next pertinent question relates to weekly hours and, although the standard basic week at present is one of 44 hr. based on a six-day week or an eleven-day fortnight, the impact of the introduction of a 40-hour week on a bonus would be very great because there are many undertakings working a basic week in excess of 44 hr.

Man-hours are obviously affected by scheduled speeds and providing present timetables are cast to ensure that reasonable speeds are in operation, it would be very difficult to increase speeds except at the expense of safety which, to say the least, would be the height of folly. There would seem to be little scope here for substantial reduction in hours which would have any appreciable increase in earnings. Scheduled layover times are usually agreed upon to enable duties to comply with the variations of the provision of Section 19 of the 1930 Road Traffic Act, but in practice, layover periods are determined to a very large degree by timetable requirements.

One of the points put forward by exponents of bonus schemes relates to the comparative ease with which reduced frequencies can be negotiated and introduced at off-peak and other times, and it must be conceded that there may well be something in this contention. On the other hand, trade union executives must appreciate that there is every indication that the road passenger transport industry is a shrinking one and pruning of uneconomical services must take place.

Passenger-Miles

The industry's output should be measured by passenger-miles on the basis that the greater the number of people using our buses and the farther they travel the higher is our output. Traffic productivity is determined by output per man-hour paid, and it behoves us, therefore, to look very carefully at the passenger-miles figures and at the method of calculating them. We should also review them objectively to determine their effect on productivity of traffic staffs.

Ample evidence is available to prove that the number of passengers carried is falling, but the erection of housing estates out-of-town has meant that in many instances longer journeys are involved. There is, therefore, a compensatory element, and one could justly claim that "what is lost on the passenger roundabouts is gained on the mileage swings." In practice this means that although a bus driver may have to halt his vehicle at fewer stops than previously and carry less passengers during his period of duty his productivity would not in theory be reduced, because the average length of each passenger's journey may have increased.

For longer distances travelled by bus passengers a tapering fare structure is the rule rather than the exception and this in its turn results in less "revenue per passenger-mile" with a reduction in calculated bonus for the conductor. Furthermore, figures may well become misleading in the event of marrying of tickets, and even if accurate ticket statistics are available the information derived in the form of passenger-miles may not give any clear indication of the work involved.

Unless a bonus scheme is merely an excuse to increase the basic wage rate the theory must be that additional revenue will offset additional cost due to higher wages paid in the form of a bonus, and at the same time provide the department with a proportion of the gain.

Income and expenditure nowadays must be virtually equated, and it has become the practice after introducing maximum operating and administrative economies to pass on any "unbearable" cost to the consumer. The consumer, being the general public, is very fickle and supercritical and any increase in cost without a direct improvement in efficiency is likely to be severely criticised if such was caused by bonus payments as distinct from national wage awards.

Are Incentive Schemes Needed?

I can't help feeling that the state of the labour market tends to influence operators in considering incentive bonus schemes. There is not, in my opinion, any analogy or basis for comparison between our traffic staff's productivity and that of the engineering or other manufacturing industries. In the latter cases it is possible to cost accurately all sections of the production, starting with the raw material and finishing with the end product. Time and motion study is not only advisable but essential in the manufacturing industry, but is very difficult to introduce in the traffic section of road passenger transport.

There is a logical viewpoint, widely held, that if the basic rate is fair and just, it is the duty of management and trade unions mutually to suggest and support economies to improve the financial stability of their undertaking. It may well be that we in transport can benefit by widening our horizon and observing carefully the effect of changes in kindred industries.

To people of my generation these "difficult times" are "normal times" and it is not to be considered alarming that the industry is shrinking to a new and possibly more economic level. Omnibus services will undoubtedly be reduced in the years ahead, resulting in the employment of less people in our industry, but a new level will emerge and new standards will be evolved nationally. *If there is a real need for incentive bonus schemes in the industry then it is a national need* —and I see no evidence of that at the present time. I do, however, pose a final question. Is our industry doing all it can in examining the question of increased productivity apart from cash bonus incentives?

* Abstract of a paper presented to the annual conference of the Municipal Passenger Transport Association in Edinburgh on September 22.

OFFICIAL NOTICE

MANCHESTER CORPORATION

TRANSPORT DEPARTMENT

TECHNICAL ASSISTANT

Manchester Corporation Transport Department require a fully qualified Technical Assistant.

Applicants must have passed the final examination of the Institution of Mechanical Engineers or its equivalent.

Salary in accordance with the special basic grade of the national scales, i.e. £785—£1,070 per annum. Point of entry according to experience.

Forms of application may be obtained from the General Manager, 55 Piccadilly, Manchester, 1, and should be returned not later than October 7, 1959.

SEA LINKS WITH THE CONTINENT

22—Amsterdam—London Line*

AN interesting postwar development has been the expansion of services provided by Netherlands shipowners with motor vessels of between 200 and 400 gross tons engaged on both liner and tramp runs. In the short sea trade between the Netherlands and United Kingdom, for instance, Starintex, Limited, 241 Keizersgracht, Amsterdam, has built up a regular liner trade under the title "Amsterdam—London line."

The m.v. "Hinde" alongside Fenning's Wharf in the Pool of London

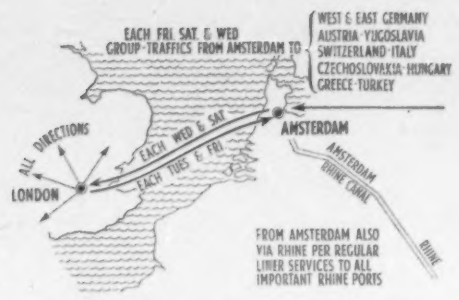
This line has been operating for the past three years and has developed a steady general trade between the two countries. It has two sailings each week—on Wednesdays and Saturdays from Amsterdam, loading at Wharf N Zeeburgerkade, arriving in London the following day. Vessels return from London on Tuesdays and Fridays arriving in Amsterdam the following day.

The present fleet consists of two ships, the m.v. *Hinde*, built in 1939, by Gebr Bodewers Volharding of Voxhol, with one deck, registered tonnages of 400 gross and 245 net, and six-cylinder diesel engines, and the m.v. *Lizard*, built by Paul and Peters, of Beidenfleth, in 1957, this vessel having four-cylinder oil engines and registered tonnage of 300 gross and 161 net.

Refrigerated Hold

To meet the needs of merchants a refrigerated hold was constructed in the vessel which leaves Amsterdam on Saturdays, the *Hinde*. This enables Dutch merchants to ship refrigerated goods on Saturday in Amsterdam in the knowledge that such goods can be in the London markets or warehouses on the following Monday. Since this refrigerated space was first provided just over a year ago it has proved most successful, and typifies the willingness of Netherlands shipowners to provide the facilities to meet the needs of merchants. The use of containers is another service which is offered; during the flower-bulb season the line carries large quantities of bulbs in this way.

A feature of Amsterdam—London Line is the group traffic scheme operated from Amsterdam to and from countries shown on the accompanying diagram. This service is becoming very widely used.



A handy self-explanatory diagram of the facilities which are offered to merchants by the Amsterdam—London Line

and it is interesting to note that one of the countries included is Yugoslavia. A considerable amount of traffic, including furniture from that country, is handled in this way.

The loading and discharging berth in London is Fenning's Wharf, situated in Upper Pool of London adjacent to London Bridge. It has four up-to-date electric quay cranes including lifting capacity up to 12 tons. Warehouse accommodation exceeds 3,000 tons for general cargo and cool air and cold storage facilities are available if required. It is a most convenient centre for the needs and interests of the Tooley Street provision trade area and is also well situated for other City merchants.

The agent for the Amsterdam—London Line is B. Atle, Ltd., Atle House, The Monument, London, E.C.3, which also has offices in Birmingham, Hull, Immingham, Grimsby and Hamburg. It is also a shipbroker's firm with extensive activities including shipping lines to Scandinavian, Mediterranean and Central American ports.

* No. 21 appeared June 13.

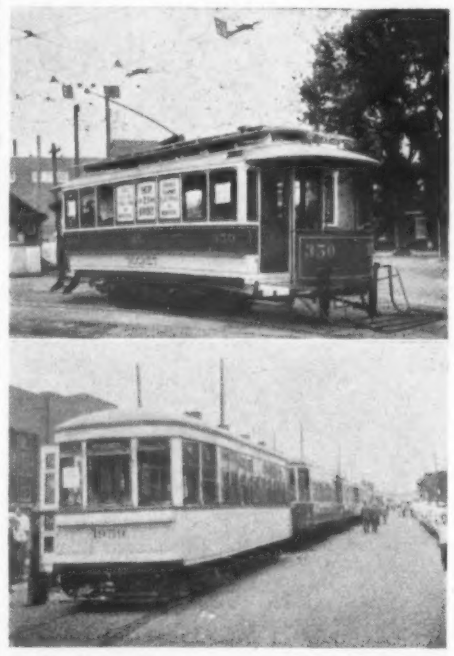
LAST MONTREAL TRAM

Historic Procession

ON the afternoon of Sunday, August 30, crowds eight-deep in places, participated in the end of the Montreal streetcars with cheers, horn-blowing, and bilingual repartee. To mark the withdrawal, the last regular car was followed by a procession of historic vehicles carrying dignitaries and guests of the Montreal Transportation Commission. All the electric vehicles ran under their own power, and ranged from four-wheelers of the 1890s, through examples of the streetcar at its zenith in the twenties, the famous tourist observation cars, to the last P.C.C. unit.

A total of 15 vehicles travelled the seven-mile journey along the last route on Papineau Street and included were some valuable examples, some belonging to the Canadian Railroad Historical Association. Of particular interest were two horse-drawn units, one with runners for winter use and one with high wheels for the spring thaw and summer, both dating from 1861. Three electric single-truck units dated from the nineties, including No. 350, which was the first actual electric car in Montreal and still operated with original equipment. This unit is the only "first" streetcar to have been preserved in North America.

Three double-truck and one single-truck units represented the period 1910-24. The latter is one of the Birney lightweight one-man cars which was the great hope of the streetcar lines against the growing competition of the buses through the twenties. This car, No. 200, is of exceptional interest as it is the only one left in operating condition out of a total of 5,000 once used in North America. The most prolific type used in Montreal was the 1300 series two-man operated bogie cars, 200 of which were put in service between 1913 and 1917. The example in the parade had been fitted with dynamic braking and used until recent years on the steep line up Mount Royal. Cream-coloured exteriors were adopted to identify one-man cars in 1926, and car No. 1959 was selected to represent this class after having given just 30 years of service. Car No. 2222 represented the last two-man cars, placed in service 1927-30 and only recently withdrawn.



The first electric streetcar in Montreal, No. 350, appeared in the procession marking tramway abandonment, still with its original equipment; below No. 1959, a one-man car built by Canadian Car and Foundry in 1929—one-man cars of the Montreal Transportation Commission were painted white

Advantage was taken by our correspondent of the occasion to ride in a number of these vintage cars, and even though rain from a sudden shower dripped in one, and the air was oppressive in the little 1893 box, he felt as nostalgic as the motormen terminating many years of service. Pressing almost indecently on the rear of the procession came the first regular bus taking over this last streetcar route. Only in Toronto do city streetcars remain in Canada, and they probably will not pass away with the fine flourish that Montreal reached the end of an era, la fin d'une epoque.

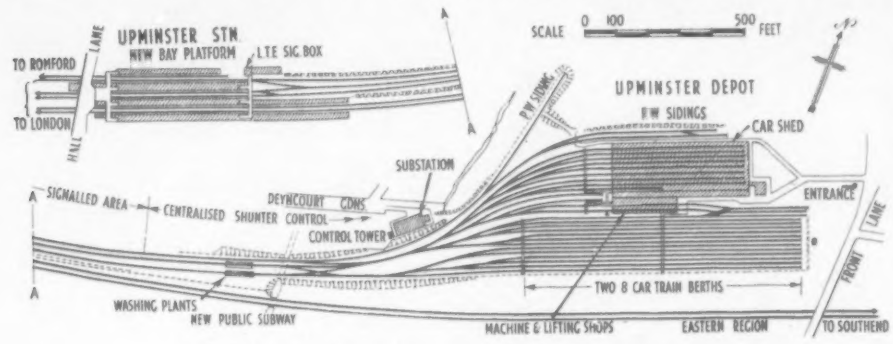
L.T.E. UPMINSTER DEPOT

Now in Full Commission

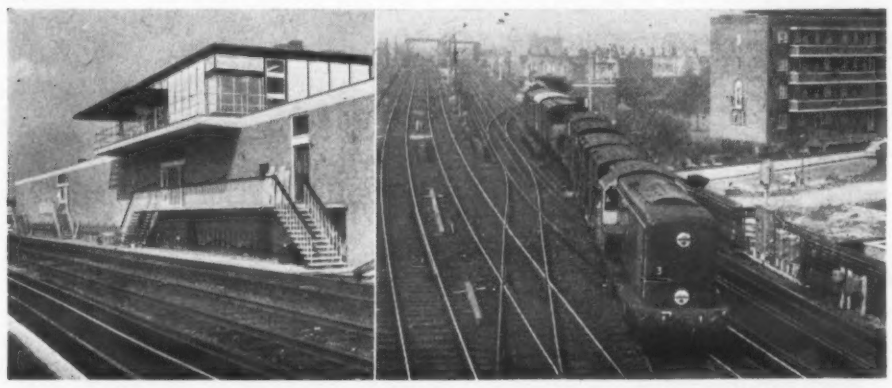
IMPROVEMENT FOR DISTRICT LINE

WITH the transfer to the new London Transport District Line depot at Upminster of the routine work of lifting the two-car (or "east end") sets of that railway's eight-car trains, this latest of the undertaking's railway depots may be considered fully operational. With stabling for 34 eight-car trains and built at a cost of roundly £1 million, it is the first completely new depot to be built for the Underground since the war. There will be some 25 men associated with heavy maintenance, 70 with seven-day inspection routine, cleaning and the like and about 100 train crew. Its provision became urgently necessary to release space at Little Ilford triangle, hitherto occupied by the District East Ham depot (built by the L.T.S.R. for the electric trains in 1905) for L.T.S. line electric carriage sheds in connection with the Southend electrification. At the same time District tracks are being made entirely independent of the Eastern Region L.T.S. line tracks from Campbell Road Junction (east of Bow Road) to Upminster.

Special features include a control tower fitted with talk-back apparatus, enabling instructions to be given from the tower to drivers through track-side loudspeakers heard by the driver concerned and no one else, and microphones enabling the driver to reply, using ordinary speech level; alternative or supplementary communication to a shunter by walkie-talkie; complete control of all points by thumb switches in the control tower; and two train washing machines of a new type through which trains pass into the depot out of service. Associated with the opening of this depot, a new push-button signal cabin was brought into use at Upminster Station. The depot was opened on December 1, 1958, for operating purposes and day-to-day cleaning and maintenance of trains, but not for heavy maintenance work. The new 215-ft. lifting shop has now been completed and fitted with modern equipment and full maintenance work can be undertaken.



Track diagram of London Transport railway depot at Upminster



Other improvements to District Line working will result from L.T.S. modernisation: master signalbox at Barking nearing completion and, right, on September 20, in course of separating District and L.T.S. tracks, North London Junction at Bromley—here seen occupied by a Willesden to Ripple Lane freight—was cut

Depot Layout

The new depot, which is the only Underground depot on the east side of London serving the District Line, replaces meagre shed facilities previously provided at East Ham depot and sidings at Upminster. The provision of the depot will also permit a more efficient distribution of train servicing, maintenance and stabling as between the east and west ends of the line. The new depot, on which work started on May 1, 1956, has three reception roads leading to 13 sidings capable of taking 25 trains, a car shed with nine roads, a lifting shop with two roads, and three permanent way sidings. These will come into use when the tracks become entirely independent of the Eastern Region and the L.T.E. takes over maintenance. One of the depot roads can accordingly take battery locomotives and a loading dock for road vehicles adjoins one permanent way siding. There are washing machines on two of the reception roads, and all roads in the car shed and lifting shop have pits.

Originally, as the depot is single-ended, it was intended that most of the stabling roads should take only one train, a wide fan of sidings being provided for the purpose. In the interests of economy, however, the fan was closed up and the sidings lengthened so that two trains can be stabled on each road. This can mean that on rare occasions trains, which otherwise could enter service, can be blocked, but savings in initial cost and daily track maintenance have been achieved. The closing up of the fan also made it possible to reduce the number of approach or reception roads from Upminster Station from four to three. Space, however, is available for more sidings should it become necessary to accommodate additional trains on the District Line. The lifting shop is double ended and track facilities provide for release of cars from the far end.

Civil Engineering

The depot is built on a clay subsoil on a sloping site originally drained by field drains and open ditches. Drainage of the higher land, on which stand the 13 stabling sidings, was effected, after excavation in bulk, by cutting the clay into a formation of peaks and valleys with 1 in 10 side slopes to cause rainwater to be discharged into 9-in. diameter open-jointed drains haunched in concrete and covered with ballast rejects. These open-jointed drains run across the depot site at 27-ft. centres and discharge through close-jointed pipes at deep level into the municipal sewerage system.

The straight siding tracks are laid on fine ash spread over the clay to a minimum depth of 7 in., the ash then being brought up to the top of sleeper level. The lower end of the site, an area of about two acres, had to be raised by depositing filling material up to 10 ft. in depth. Dry-filling material was used to avoid settlement. Carefully graded pit sandy ballast was used. It was essential that the dry-fill should remain permeable, after compaction to the degree necessary to avoid settlement, as it was decided to use the natural drainage slope (1 in 50) of the existing ground, and for economy to lay the open-jointed drains at this low level before placing the filling material. The drains were arranged to discharge into an existing culvert.

Night view of Upminster District Line depot and stabling sidings

Track Laying Stages

To keep siding facilities available the work was divided into four stages. The preliminary stage consisted of laying a fan of seven sidings, each taking two trains, in its final position and providing a temporary connection to the single existing reception road. Then 11 train berths were electrified, nine to replace the existing berths, one for shunting purposes, and one for use by the permanent way department for equipment purposes.

The earthworks for the eastern end of a new reception road and the base for its washing plant were put in hand at the same time, as were the construction of a sixth platform at Upminster Station (for E.R. Romford diesel sets) and the first stage of a new subway to replace the former footbridge carrying a public footpath between Deyncourt Gardens and Howard Road across the site.

(To be continued)

IMPORTANT CONTRACTS

More A.E.C.s for Sydney

ONE of Australia's largest users of A.E.C. commercial goods and passenger vehicles, Sydney County Council, has ordered a further 50 A.E.C. Regal IV bus chassis. They will be shipped to Australia in knocked-down form during January next year and will be fitted with bodies of local manufacture. Sydney's A.E.C. bus fleet alone totals nearly 750 vehicles, mostly double-deck Regents and underfloor-engined Regal IVs, and in addition a 100 per cent A.E.C. goods vehicle fleet is operated by the council for road-sweeping and other public services.

South Wales Docks Contracts

The British Transport Commission (South Wales Docks) has placed the following contracts:

G. and A. E. Slingsby, Limited, for steel hydraulic pressure pipes for King's Dock Lock, Swansea Docks.

The Stanton Ironworks Co., Limited, for water pipes for King's Dock Lock, Swansea Docks.

Ransomes and Rapier, Limited, for one 3½-ton diesel-electric mobile crane for Dock Manager's Department, Cardiff.

C. H. Bailey, Limited, for general overhaul of s.h.b. *Foremost 27*.

E. Boydell and Co., Limited, for one shunting tractor for Dock Manager's Department, Barry.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include:

Automatic Telephone and Electric Co., Limited, London, for a 300-400-line telephone exchange at Middlesbrough Station.

Tarslag, Limited, Stockton-on-Tees, for reinforced concrete bridge abutments at Newport.

Plasser Railway Machinery, London, for two Plasser tamping machines and two lifting and levelling machines.

Cambrian Wagon and Engineering Co., Limited, Cardiff, for seven storage tanks at Gateshead motive power depot.

Harrison and Doughty, Limited, Goole, for the repair of an electrically operated turntable at York motive power depot.

Denham's Engineering Co., Limited, Halifax, for a high-speed lathe and equipment for Walker Gate carriage and wagon works.

Yorkshire Hennebique Company, York, for reconstruction of bridge at Leeds City Station.

Redifon Simulator for S.A.S.

A jet-engine trainer designed to reproduce the working of a Pratt and Whitney JT4 jet engine has been ordered by Scandinavian Airlines System from Redifon, Limited. S.A.S. has already taken delivery of a full DC8 flight simulator for crew training in readiness for 1960 delivery of its seven DC8s. The engine simulator fills the same training function for the engines and aircraft systems as the flight simulator does for the handling of the complete aircraft. The Redifon trainer is to be installed early next year at the S.A.S. mechanics school at Stockholm's new Arlanda Airport, now nearing completion.

SHIPPING and SHIPBUILDING

Second Superliner Plan

ESTABLISHMENT of a joint American-Dutch shipping company to operate a cheap passenger service across the Atlantic was announced at the Hague last week by Mr. L. Edgar Dettwiler, president of American European Travel Project, Incorporated, of New York, who is also a managing director of the new company. The chairman is Professor Gerbrandy, a former Prime Minister of the Netherlands. Named American European Lines N.V. the new company, which will have offices at the Hague and New York, has made an agreement with Verolme United Shipyards, of Rotterdam, to build four transatlantic vessels "as rapidly as possible." This plan was announced by Mr. Dettwiler last year. Each vessel, of about 120,000 gross tons with a speed of about 35 knots, would be able to carry 8,000 passengers and up to 2,000 crew. Operation and financing of the necessary initial commitment of $35,500,000 per vessel had already been arranged, said Mr. Dettwiler. "The balance of the amount due to complete the building costs of each vessel will be furnished when required for the various construction payments that will become due during the building period," he added.

The total cost of the venture was estimated at $128 million per vessel. It was also announced that all shares in the new company had been subscribed privately and a "substantial part" of the capital involved was Dutch. Terminals would be constructed at Amsterdam, Lisbon and New York. The average return fare for people sharing a three- or four-berth stateroom with a bathroom, including meals, would be £62 per person. Mr. Dettwiler said he expected the first vessel to be ready in three years time. It is proposed to operate two of the superliners between New York and Amsterdam, with possible calls at Cobh and Plymouth, and two between New York and Lisbon, with voyages on occasion to an Italian port or ports. It is suggested that special terminals may be built in New York, Amsterdam and Lisbon; they would certainly be useful for speedy handling of such very large numbers of passengers.

First P. and O. Bermudan Tanker

THE 19,125-ton tanker *Maloja* was handed over to her owners, the Charter Shipping Co., Limited, on September 10. She is the first of the tankers on order for Charter Shipping, a member of the P. and O. group, which was incorporated in Bermuda in 1956. She was built by Smith's Dock Co., Limited, Middlesbrough, and has a service speed of 14½ knots.

Export from Scarborough

SCARBOROUGH has started the export of grain for the first time in the harbour's history. The first shipment was exported over the weekend of September 12 and it is expected that shipments will continue throughout the winter months. The barley is being delivered to the harbour by road through the West Riding, but a store with accommodation for 12,000 tons is being held at Seamer for winter export and there is another large store at Malton.

Midlands—Continent Link

IN conjunction with the Willow Wren Canal Carrying Co., Limited, Walford Lines, Limited, is to introduce a new service today (September 24). Export traffic will be accepted at Tyseley Wharf, Birmingham, and other canal stations en route to connect with the regular sailings of Walford Lines ships from Regent's Canal Dock, London to Antwerp and Rotterdam, where connections will be available to Germany, Switzerland and other destinations.

New Deep-Water Berth at Hebburn

THE first ship arrived recently at the Palmers Hebburn works of Vickers-Armstrongs (Shipbuilders), Limited, to moor at the new deep-water berth. She was the Furness, Withy liner *Ocean Monarch* and she had returned for her annual refit. The berth is part of the development scheme at the yard which includes a new 850-ft. dry dock capable of taking tankers of up to 85,000 tons deadweight. With this new quay Palmers Hebburn have a river frontage of 2,000 ft.

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TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

October 5—Formosa.—International Co-operation Administration for 48 driving-wheel and 48 steering-wheel TYRES, TUBES and FLAPS for Aveling-Barford dumpers. Tenders to the Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan. (ESB/21451/59/ICA.)

October 5—Pakistan.—Department of Supply and Development for two heavy-duty TRACKED TRACTORS with angle and straight bulldozers, matched towing WINCHES and LOGGING ARCHES. Copies of tender documents from Export Services Branch, B.o.T., price 7s. (ESB/21999/59.)

October 6—Formosa.—International Co-operation Administration for five complete diesel-engined LORRIES. Photocopies of tender documents from Export Services Branch, B.o.T., price 10s. (ESB/21458/59/ICA.)

October 7—Iraq.—Ministry of Defence for approximately 8,000 lead-acid batteries as follow: 3,000 6V 17 plate, 1,350 6V 15 plate, 1,250 12V 9 plate, 1,770 12V 23 plate, 50 12V 25 plate and 800 12V for Willys Jeep. Tenders to the Directorate of Purchases, Ministry of Defence, Baghdad. (ESB/22334/59.)

October 7—Union of South Africa.—Beaufort West Municipality for one 5-ton DIESEL CHASSIS equipped with 1,200-gal. vacuum SEWAGE TANK. Tenders to The Town Clerk, Municipal Office, Beaufort West, Cape. (ESB/21392/59.)

★

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Silentbloc

The consolidated net profit, after tax, of Silentbloc, Limited, for the year ended May 31, 1959, was £149,799 (£134,476) and dividend is 25 per cent, or 6d. per 2s. share (same).

W. Griffith and Sons

Production of springs at the old-established firm of W. Griffith and Sons, Limited, Sheffield, is due to cease shortly as its railway spring-making business and certain items of plant have been acquired by English Steel Spring Corporation, Limited. This, says the new owner, is a transference of business from one railway spring manufacturer to another of equal standing and long experience.

Gloucester Railway Carriage and Wagon

Group net profits of the Gloucester Railway Carriage and Wagon Co., Limited, for the year ended May 31 were £206,962 (£227,239) after tax of £193,647 (£267,553). Of the profit £30,306 (£27,871) was retained by the subsidiaries, leaving a balance of £176,646 (£199,368) to be dealt with by the parent. Final ordinary dividend is to be 10 per cent, making 15 per cent (same). General reserve receives £65,000 (£91,434, including the amount of £26,434 required to write off goodwill at May 31, 1958).

SOCIAL AND PERSONAL

Locomotive Engineers' Awards

THE following awards for papers have been made by the council of the Institution of Locomotive Engineers. Presentation of the awards was made by the retiring president, Mr. R. Arbuthnott, at a meeting of the Institution on Tuesday this week.

The Frederick Harvey Trevithick Award: to Mr. S. C. Ell for his paper "The Mechanics of the Train in the Service of Railway Operation."

The Institution of Locomotive Engineers Award: to Mr. R. M. Hancock for his paper "Vehicle Suspension and Bogie Design in Relation to Track Conditions."

The Alfred Rosling Bennett Award: to Mr. T. Schur for his paper "Some Design Considerations of Main-Line Diesel Locomotives."

The Charles S. Lake Award: to Mr. B. W. Anwell for his paper "Developments in the Detail Design of Diesel Locomotives."

The William Alexander Agnew Award: to Messrs G. R. Mahy and H. W. Mear for their joint paper "The Two Derby Diesel Electric Locomotives—Design and Construction." Paper presented in Derby.

The Stewart Dyer Award: to Mr. R. K. Sethi for his paper "Introduction of Diesel Locomotives on Indian Railways." Paper presented in Calcutta.

The Graduates' Award: to Mr. F. Rich for his paper "Some Details of Steam Locomotive Design Affecting the Footplate Man." Paper presented in Derby.

A President's Prize: to Mr. A. S. Lawrie for his essay on the Institution's visit to Derby locomotive works in March.

* * *

The research director of Ferodo, Limited, Dr. R. C. Parker, is now on a three-week tour in the U.S.A. He is holding technical discussions with the S. K. Wellman Company, in collaboration with whom Ferodo is manufacturing sintered metal products in the U.K., and the Bendix Aviation Corporation, with whom it exchanges technical information on the development of cerametallic friction materials. Both types of material are relative newcomers to the field of brake and clutch design.

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Sir John M. Brocklebank, Bart., has been elected chairman of the boards of the Cunard Steam-Ship Co., Limited, and of Cunard White Star, Limited, in succession to the late Colonel Denis H. Bates.

Sir John M. Brocklebank

A son of the late Sir Aubrey Brocklebank, a former chairman of Thos. and Jno. Brocklebank, Limited, and a former director of the Cunard company, Sir John Montague Brocklebank was educated at Eton and Cambridge. He joined the board of Cunard in 1951, and was elected a deputy-chairman in 1953. He is deputy-chairman and managing director of Thos. and Jno. Brocklebank, and deputy-chairman of Martins Bank, Limited. He is also a director of the Reliance Marine Insurance Co., Limited, the Port Line, Limited, Crosfields and Calthorp, Limited, and Chas. Howson and Sons, Limited.

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The third term of office of the Transport Users' Consultative Committee for the South Western Area having expired, the Minister of Transport has appointed a new committee under the continued chairmanship of Major-General W. E. V. Abraham. The new members are: Messrs W. J. Salter and W. G. Dascombe (representing commerce) and L. Edwards (divisional traffic manager, Western Region, B.R., representing the B.T.C.).

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Mr. J. K. Firth, who has been appointed district goods manager, Birmingham, London Midland Region, joined the L.M.S.R. as a clerk in the goods department at Harrow and Wealdstone in 1935 and after experience at a number of goods and passenger stations was selected as a traffic apprentice in 1937. In 1946 he returned from war service as acting goods agent at Oldham and was appointed goods agent at Willesden (1947), at Reading (1950), and at Leeds Hunslet Lane (1952). In 1954 he served on the North Eastern Region general manager's productivity committee and in 1955 became assistant district commercial superintendent, Hull. Later in the same year he was promoted to assistant district goods manager, London, Broad Street. Mr. Firth was appointed district goods superintendent, Newcastle upon Tyne in 1957, the position he has now vacated.

Mr. J. K. Firth

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The annual dinner and dance of the Traders' Road Transport Association will be held in the Great Hall at Grosvenor House, Park Lane, on November 2 at 7 p.m. for 7.30 p.m.

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Mr. W. T. Buxton, staff assistant to the line traffic manager (Great Eastern), Eastern Region, has been appointed assistant (wages staff) to the regional establishment and staff officer, Eastern Region, located at Liverpool Street. He is succeeded by Mr. A. C. Newell.

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The British Transport Commission, in accordance with its policy of holding some of its meetings outside London so as to keep closely in touch with leading industrial, business and trading interests, met in Southampton on September 17, during a tour in that area from September 16 to 18. Following a formal business meeting on September 17, under the chairmanship of Sir Brian Robertson, they inspected the Ocean Terminal and, in the afternoon, the docks and met representatives of the staff. On the following day there was an inspection of the B.R.S. depot, vessels and quay, used for traffic to the Isle of Wight, and a visit to the Hants and Dorset bus station at Bournemouth.

Transport First-Aid Competitions

THE final first-aid competitions for the Stirk Trophy and Lewis Cup organised by the National Road Passenger Transport Ambulance Association, of which Mr. J. B. Burnell, operating manager, Central Road Services, London Transport, is president, will be held at the L.T.E. Works at Aldenham on October 11 at 2.30 p.m. Trophies and prizes will be presented by Major-General J. M. Kirkman, Commissioner-in-Chief, St. John Ambulance Brigade.

The Stirk Trophy was presented by the late Mr. John H. Stirk, East Midlands Traffic Commissioner, for the purpose of encouraging employees of road passenger transport undertakings to become proficient in first-aid work. For the purpose of the competition, area contests are held, representing Northern, Midland and Southern undertakings. The leading teams in each event compete in the final. This year's teams are: Birmingham, Liverpool, Edinburgh, London Transport, Leicester, Nottingham and Plymouth.

The Lewis Cup was presented by Mr. H. D. Lewis, secretary of the N.R.P.T.A.A., for competition between women employees of the member undertakings. The teams taking part this year are from Cardiff, Liverpool and London Transport.

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Mr. R. N. Hannay has joined Dennis Brothers, Limited, as sales representative for the Loline bus chassis. He was previously with Guy Motors, Limited.

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At the Scottish conference of the Municipal Passenger Transport Association the winners of the *Transport Journal* golf competition were Messrs. F. M. Walton (Power Petroleum) and H. R. Burton (Transport Brakes). The runners-up were Messrs. A. L. Smith (Vulcan Products) and Harold Muscroft (transport consultant).

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East London College of Commerce (Vallance Road, Whitechapel) has arranged a special course, commencing September 28, leading to the course for part one of the Institute of Transport graduateship examination. Parts one and two graduateship courses are also available. The college provides an officially approved port working course.

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Mr. L. P. Lee is succeeding Mr. A. V. Wilkin as chairman of the British Internal Combustion Engine Manufacturers' Association and Mr. H. Desmond Carter, M.I.Mech.E., becomes vice-chairman. Mr. Lee is chairman and managing director of Coventry Climax Engines, Limited, and Coventry Diesel Engines, Limited. Mr. Carter is chairman and managing director of Crossley Brothers, Limited.

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The Railway Club is arranging a special rail tour to East Anglia on Saturday, October 3. The train will leave Fenchurch Street at 9.30 a.m. for Lowestoft, Gorleston and Yarmouth, travelling over the Framlingham and Snape branches en route. Return to Liverpool Street (due 9.48 p.m.) will be via Haddiscoe, Beccles and the Waveney Valley. Fare will be £2 and packed lunch will be available at 3s. 6d. and 5s. 6d. Applications, accompanied by a remittance and a stamped foolscap envelope, should be sent to the hon. secretary at 320 High Holborn, W.C.1.

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The Municipal Passenger Transport Association announces that the results of the 1959 Essay Competition are as follows:

SECTION I—Open to administrative and supervisory staffs and inspectors:

FIRST PRIZE (silver medal and 15 guineas) to Mr. H. McDonald, Leeds City Transport Department. SECOND PRIZE (certificate and 10 guineas) to Mr. K. H. Law, Leicester City Transport Department. THIRD PRIZE (certificate and 7 guineas) to Mr. G. I. McKay, Manchester Corporation Transport Department.

SECTION II—Open to operating staffs, craftsmen and maintenance employees:

FIRST PRIZE (silver medal and 15 guineas) to Mr. F. L. Price, Liverpool Corporation Passenger Transport Department. SECOND PRIZE (certificate and 10 guineas) to Mr. G. H. Helliwell, Huddersfield Passenger Transport Department. THIRD PRIZE (certificate and 7 guineas) to Mr. C. Dix, London Transport Executive.

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Mr. D. Beattie, appointed district commercial manager, Leicester, London Midland Region, B.R., was educated at Lincoln County School and commenced his railway career with the former L.N.E.R. in 1936. During the 1939-45 war he served as a lieutenant in the R.N.V.R., on convoy escort work and the Normandy landings. In 1946 Mr. Beattie was appointed a traffic apprentice; in 1950 moved to the development section of the commercial superintendent's office at Glasgow, and in 1951 was appointed goods agent, Shieldhall. He became cartage assistant to the district goods and district passenger superintendents, Glasgow, in 1952, and in 1955 was appointed assistant district traffic superintendent, Inverness. In 1956, he became assistant district commercial manager, Derby, and in 1958 district commercial officer, Norwich, the position he now leaves to take up his present appointment.

Mr. D. Beattie

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Mr. S. J. Wrigglesworth, O.B.E., deputy managing director of Oldham and Son, Limited, is retiring after 39 years' service.

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Mr. R. S. C. Murrell has been appointed district superintendent, north-eastern district (Country buses and coaches), London Transport.

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We regret to record the death on September 15 of Mr. Alfred Robert Bell, at the age of 82. For 62 years he took an active part in the business of F. Moore, and its successor the Locomotive Publishing Co., Limited, both of which he founded in conjunction with his brothers Messrs. A. M. and W. J. Bell. For well over half a century he was connected with the editing of *The Locomotive Magazine* and in addition was responsible for the production of many technical and historical books relating to railways. Mr. A. R. Bell was a well-known figure in the railway world, possessed a kindly nature and a humorous disposition, and did much to encourage many who were later to achieve distinction in technical journalism. He joined the Institution of Locomotive Engineers in 1912 and was also a member of the Newcomen Society.

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